


Telecommunications and Canada

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Consultative Committee
on the Implications
of Telecommunications
for Canadian Sovereignty

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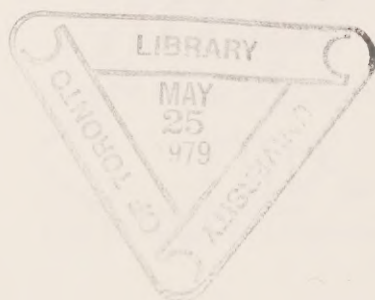


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Telecommunications and Canada

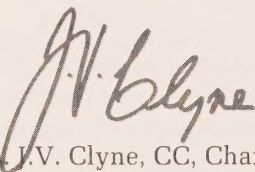
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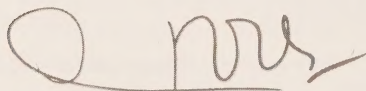
**Consultative Committee
on the Implications
of Telecommunications
for Canadian Sovereignty**

The Honourable Jeanne Sauvé,
Minister of Communications
House of Commons, Ottawa

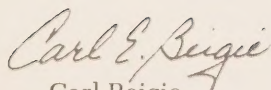
Madame: We, the undersigned, members of the Committee you appointed on 30 November 1978 to advise on the implications of telecommunications for Canadian sovereignty, have the honour to submit the following report.



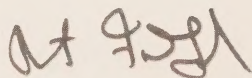
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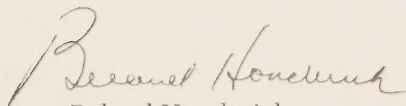
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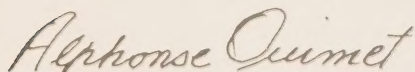
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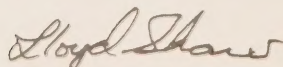
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March 1979

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Preface

Appointment and Terms of Reference

The Committee was appointed on 30 November 1978 by the Honourable Jeanne Sauv , Minister of Communications, and asked:

to produce specific recommendations on a strategy to restructure the Canadian telecommunications system to contribute more effectively to the safeguarding of Canada's sovereignty; and

to make recommendations on the future of the Canadian telecommunications system in relation to new technologies and the need for Canadian software and hardware resources to meet foreign competition, with particular reference to the role of broadcasting in contributing to the preservation of the sovereignty of Canada, including:

- a) the use of communications satellites to the best advantage of Canada;
- b) the status of the cable companies in relation to broadcasting and to the common carriers in the provision of new services;
- c) the importation of foreign programming;
- d) the framework and timing for the introduction of pay-television nationally.

The foregoing terms of reference formed part of a document drawing attention to the urgent need for policy decisions, which is appended as Annex A to this report.

Our terms of reference explicitly excluded questions of jurisdiction, but the Committee — while its members themselves seldom if ever disagreed on a jurisdictional question — nevertheless realized that the present distribution of government authority over telecommunications adds to the complexity of the issues. At the same time, while we were appointed by the Minister of Communications, we came to understand that many aspects of telecommunications reach beyond the scope of the Department of Communications.

In making recommendations, therefore, we have been guided by what we believe is best for Canada, regardless of which level of government has authority in any particular aspect and regardless of which government department may eventually be involved.

The Work of the Committee

The Committee was asked to complete its work in a brief period; it would therefore have been impracticable to hold public hearings. Our first meeting was held on December 7 and 8, and it was immediately decided to invite briefs from the provincial governments and other bodies, and to make arrangements for appearances by the principal trade associations and others at meetings of the full Committee. Altogether, we received twenty-two delegations and individuals, affording more than eighty persons the opportunity to supplement their written briefs with oral representations. It was also made known that the Committee would welcome written briefs from any interested parties, even if submissions had not been directly invited. There was a substantial response, and we received sixty-seven written briefs and other submissions, totalling several thousand pages. We should like to express our gratitude to those who were sufficiently concerned to make their views known to us, especially having regard to the very short time available for the preparation of briefs on complex subjects.

A list of delegations and individuals who came to talk to us is appended in Annex B. Annex C lists the solicited and unsolicited briefs we received and studied. We regret that the limited resources of the Committee preclude us from publishing the briefs; we suggest that those interested should make direct application for copies to the originators.

The brief time at our disposal has not permitted us to cover every detail of the problems to which we addressed ourselves. This report is an attempt to identify the more important aspects of telecommunications on which decisions should be taken and to make recommendations as to what those decisions should be.

Acknowledgments

We must thank the Minister and Deputy Minister for making departmental officials available to prepare briefing documents, to appear before us and answer our enquiries, and to organize the administrative support for our work. The briefing papers supplied by the Department were of high quality, presenting the available policy options in an objective way. We must express our special thanks to Jean Pierre Lauzon who was responsible for organizing the logistics of our exercise, and did so with commendable efficiency. We are also most grateful to Claude Beaudry for organizing records behind the scenes, and for the competent assistance given by Joanne Saurette, Hélène Charette, Nicole Sauv   and Lise Forgues who, in one way or another, facilitated our work with competence and good humour. We wish to pay a special tribute to Helen

Mackenzie, who was in charge of all the work in our offices. Andrew Watt and Stephen Pallavicini did sterling work in taking notes and writing the minutes of our meetings, as well as accepting specific responsibilities with regard to the flow of work and the handling of documents.

Above all we wish to thank Henry Hindley, our secretary, who brought to our meetings and to his extensive work on this report his years of experience and his carefully acquired wisdom in the field we addressed; and Pierre Billon, our associate secretary, whose intelligence and knowledge enabled him to be infinitely helpful to our enterprise.

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1

Sovereignty and Telecommunications

The word *sovereignty*, in the dictionary sense, implies supreme power, but in the contemporary world there is no such thing. Certainly Canadians do not regard themselves as supremely powerful in their political, social, or cultural activities: we recognize that we exist interdependently with other societies, and in the course of that interdependence share power with them in many important ways. At the same time we must assert control over our own lives, to the greatest extent possible. Decisions which create the Canada of the future should be made by Canadians. Dr. Peter Robinson, in a report submitted to our Committee, defined sovereignty in these terms: "the ability of Canadians (both in government and in the private sector) to exercise control over the . . . direction of economic, social, cultural, and political change." In much of our Committee's discussion we used that definition.

We are eight Canadians from various parts of the country, representing a variety of professions and interests, and we have spent three months studying — as lay persons — an extremely complicated field. We have come to the conclusion that telecommunications, taken in the broadest sense, will form the infrastructure of the new industrial society that is now coming into being around the world. No single person can totally understand this new society — it is difficult to comprehend the course of a battle when you are one soldier fighting in the midst of it — but it is not too much to say that its birth is an event equal in importance to the Industrial Revolution of the 19th century. What is happening now in telecommunications will set the terms of life in the 21st century

just as surely as what happened in 19th century industrialism set the terms of life for the 20th century. And Canadians of this generation, as we confront the challenge of telecommunications, are preparing the framework for the national life of Canada in the 21st century — just as Canadians of the 1870s and 1880s determined the shape of 20th century Canada by building our national railroad.

Canadian sovereignty in the next generation will depend heavily on telecommunications. If we wish to have an independent culture, then we will have to continue to express it through radio and television. If we wish to control our economy then we will require a sophisticated telecommunications sector developed and owned in Canada to meet specific Canadian requirements. To maintain our Canadian identity and independence we must ensure an adequate measure of control over data banks, trans-border data flow, and the content of information services available in Canada. If we wish to build a Canadian presence in world industrial markets then we will be required to encourage the growth of Canadian telecommunications industries that will be competitive in world terms.

In approaching telecommunications we should realize that its importance demands we view it in a special way. Telecommunications, as the foundation of the future society, cannot always be left to the vagaries of the market; principles that we might care to assert in other fields, such as totally free competition, may not be applicable in this crucial sphere. We must look at it freshly, without preconceived ideas.

Our Committee has attempted to suggest strategies for government and private action, but we realize that there are many areas we have not been able to cover adequately. We believe, for instance, that the rights of French-speaking Canadians in telecommunications (in mass communications, in data banks, etc.) must be recognized as requiring special attention. We have not had time to analyze this separately, except in a few cases. We took an overall view, bearing in mind that Canadian sovereignty is, among many other things, a means of protecting French language and culture.

In the last five decades an effective telecommunications system has been regarded as essential for the development of Canada, and for the most part Canada has had one. (In some ways we now have the best in the world). Moreover, we have in the past been leaders in this field. This Committee's argument is that we must be leaders in this field in the future as well, or we will fall calamitously behind as an industrial nation. We believe that asserting Canada's position in this rapidly changing field should be a central goal of public policy. We propose in this report to make some suggestions as to how this should be accomplished.

When the Minister announced that the Committee had been established and asked to submit a report and recommendations in about three months, the commonest criticism was that it would be impossible for any group to cover the whole complex field in so short a time. What, it was widely asked, is the urgency? We believe this report will make the urgency clear.

It has become almost trite to speak of the technological revolution and "the information society," but this does not mean that they are not with us. Canada is particularly vulnerable to developments that may jeopardize its capacity to make decisions in telecommunications. Much has already been said about the social impact of computer-communications, for instance, but we believe few people understand how devastating that impact might be on jobs for Canadians and trade for Canada. In the telecommunications field proper the rapid development of fibre-optics technology has important manufacturing implications which require attention from governments. In cable television, the cable companies are changing. They are looking for new areas of enterprise and initiative in pay-television and public carriage; some decisions, at least in principle, must be made to resolve the uncertainty now surrounding the future of the cable industry and its relationship to other sectors. In broadcasting, there is uncertainty about the future of the CBC. Many Canadians are concerned with the importation of foreign programs by Canadian broadcasting stations and networks and the large audiences attracted by U.S. stations that are widely available in many parts of Canada; what, if anything, could or should be done about this? The impact on Canadian social and cultural life is there for all to see; it should not be overlooked that the same problem is emerging in the programming of information services. The best use of communications satellites is a matter on which some policy decisions will have to be made soon. The electronics manufacturing industry in Canada is now presented with an opportunity to satisfy a growing need for equipment required for information services made possible by new technology; what action could or should be taken to help this rather fragile industry to use this new opportunity to the general advantage of Canada and for the employment of Canadians?

These are only the most outstanding of the questions to which the Committee has had to address itself. It is now necessary to give a brief account of the developments during the past few years that have led up to the present circumstances.

The federal Department of Communications was established early in 1969. In the fall of 1969, the federal Minister set up a series of studies which came to be known as the Telecommision. In the course of 1971 more than 40 special reports were published, together with a general report, *Instant World*, which attracted international attention. The general thrust of those reports was that the rapid developments of telecommunications and computer technologies, and the fading distinction between them, would lead to what was

variously termed the post-industrial or information society and give rise to profound social, economic, and perhaps political changes. The federal government almost immediately set up task forces on computer-communications and on computers and privacy, both of which reported about a year later. The provincial governments, alerted to the seriousness of the problem for Canada, set about equipping themselves with as much expertise as each could afford; during the building period, they had little choice but to regard any approach from the much better equipped federal government with reserve, if not suspicion, lest there be any encroachment on their areas of jurisdiction. The federal government created an inter-departmental committee on computer-communications to keep a watch on technological and other developments and propose appropriate policies. Another development was the establishment, with the agreement of the Council of Education Ministers, of an educational technology program to advise on the best means of exploiting new telecommunications and computer technologies for the improvement of educational techniques in every province of Canada.

It later became evident, however, that the imminence of "the wired city" (meaning societies in which a great many needs of individuals — ranging from information on demand to shopping and banking services — would be provided through TV sets in homes) had been over-emphasized. While in Canada cable television continued to expand rapidly, "the wired city" did not quickly materialize and is still mainly a project for the future. In Canada the sense of urgency generated by the Telecommission disappeared. The federal and provincial governments embarked on long-drawn-out discussions. The educational technology program was discontinued in 1975, and the federal interdepartmental committee on computer-communications was dissolved in 1977.

Cable operators, in their capacity as "broadcasting receiving undertakings," became subject to the licensing and regulatory authority of the Canadian Radio-television Commission (CRTC) in 1968. Until then only a licence under the Radio Act was required and, in some places, a municipal franchise. There were already 377 cable undertakings in operation, a total that increased to about 425 during the following ten years. There has been some accumulation of control of the companies involved, but there are still many with so few subscribers that they lack the financial resources to develop new services; there are some 160 cable companies operating in Quebec alone. The CRTC adopted a policy requiring cable operators to own as much of their plant as possible, and did not, until very recently, seem to favour a rationalization of the industry into larger units. The result is an industry that is a hybrid of indeterminate status and widely differing capabilities.

The absence in the Broadcasting Act of any general authority for the Governor-in-Council to give guidance to the CRTC in the implementation of the statutory broadcasting policy for Canada has had the effect of leaving the Commission to determine policy

through an interconnected series of *ad hoc* decisions, with little regard for what our federal and provincial governments may deem to be in the public interest.

We have been faced with no problems that were not foreseen in the early 1970s, either in the Telecommission reports or other documentation. With the exception of fibre-optics, all the technology being commercially developed today was predicted at that time. In the early 1970s federal and provincial governments became perhaps dimly aware of these issues; there was some recognition that the potential for effective policies was being carried away on a rapidly flowing river of technological development; today, the ominous sound of the rapids ahead can be distinctly heard. The failure of "the wired city" to spring instantaneously into existence has perhaps led to a complacency that could in the end be disastrous.

Unless positive action is initiated now, the sovereignty of Canada will be jeopardized in two main fields. First, Canadians are already being swamped with foreign broadcast programming and a new approach to the problem is urgently required; at the same time, there is a danger that foreign interests may achieve a predominant share of the market for data processing services and far too much of the information stored in databanks will be of foreign origin. Second, Canada is heavily dependent on imports in telecommunication technology. In certain sectors, such as communication satellites and information exchange, Canada is in the forefront of competitive technological developments. The exploitation of these developments requires public support that does not entail a vast expenditure of public funds; this is an industrial sector that can create jobs and be competitive on an international scale. The timing is important. It may not be possible to do tomorrow what we fail to do today.

2

Historical Background

TELECOMMUNICATION MEANS ANY TRANSMISSION, EMISSION OR RECEPTION OF SIGNS, SIGNALS, WRITING, IMAGES, SOUNDS OR INTELLIGENCE OF ANY NATURE BY WIRE, RADIO OR OTHER ELECTROMAGNETIC SYSTEM OR BY ANY OPTICAL OR TECHNICAL SYSTEM.¹

Until the second half of the 19th century, the effective limits of military and political power were often governed by the speed with which messages could be carried over long distances. Equestrian messengers and efficiently organized posting stations provided the fastest means of delivering oral or written messages, while hill-top beacons were used to give an alarm or one-shot news. The banking house of Rothschild is said to have made a financial coup by having carrier-pigeons convey the result of the Battle of Waterloo to its branches in several European capitals.

It is often said that the first practical mode of telecommunication was the electric telegraph, which came into use in the late 1840s but, within the definition quoted above, there were two earlier modes. The heliograph, used to send coded messages by reflected sunlight, was developed by the Greeks more than 2,000 years ago and survived until it was replaced by radiocommunication in the 20th century; the semaphore was used in a primitive form during the American War of Independence and survived until facilities for

¹ Bill C-16 for a Telecommunications Act (S.2(1)), given first reading on 26 January 1979. This definition is rather wider than those in some existing statutes.

electric telegraphy became widespread.

After telegraphy, other modes of telecommunication followed at intervals of about 25 years: telephony in the 1870s; radiocommunication in the early 1900s; radio broadcasting and radio-telephony in the 1920s; and computer-communications in the 1970s. Meanwhile, the capacity of radio-communication has been vastly extended in the past 20 years by the development of microwave and satellite transmission systems. Each new mode, in its turn, has had an important effect on the way people live.

Computer-communications is a relatively new term, the need for which has been generated by a gradual confluence, during the past 10 to 15 years, of telecommunications and computer technologies. Most of us confront this sort of technology only as consumers, when we deal with computerized banking or computerized airline reservations; but the same technology is at work in many industries and continues to expand its influence.

The layman, in approaching problems originating in technology, is liable to be confused by technical terms and incomprehensible jargon, much of it invented to describe new techniques or devices that could not otherwise be identified in simple language. As a general rule, the layman who must make decisions on broad issues arising from the advent of new techniques and devices does not need to know how they work but must inform himself on what they can do and what they will cost. It is necessary to know only that each clearly marked advance in telecommunications has been made possible by the development of greater carrying capacity in the means of transmission. Voice transmission, for instance, starting with the telephone, requires greater capacity than hand-keyed telegraph signals. A television signal needs almost the same capacity as 1,800 two-way voice circuits, and must be carried on high frequencies over the air or through a coaxial cable. Larger cables carrying many coaxial cables within an outer sheath are capable of carrying up to 90,000 two-way conversations, or up to 50 television signals. Many home television receivers today can still deliver only 12 VHF channels, but some cable companies are now offering, with the use of a converter, up to thirty-five channels, and even this number could be considerably increased in the not too distant future, if more channels were required. It is no longer possible, as it was 10 or 15 years ago, to distinguish between the technologies of telegraphy, telephony, radiocommunication, and computers. All are used, to a greater or lesser extent, in almost every mode of telecommunication, either in combination or in competition, thus undermining the structure of communications that has developed over the past 130 years.

The geography and demography of Canada are such that not only the sovereignty but the very existence of the country depended at first on efficient transportation and, later, telecommunications. Perhaps for this reason, Canada has been and still is a pioneer in telecommunications. The first submarine telegraph cable in North

America was laid between New Brunswick and Prince Edward Island in 1852. The first telephone conversation in history was carried in 1876 between Brantford and Paris, Ontario, on lines provided by the Dominion Telegraph Company. The first transatlantic radio signals, resulting from research substantially funded by the Government of Canada, were received in Newfoundland. Canada was the first country in the world to establish a domestic communications satellite system using geostationary satellites, and that system is still the largest of its kind. Canada now leads the world in total capacity of telecommunications facilities of almost all kinds (telephone subscribers in proportion to the total population, broadcast receivers as a proportion of total population, the number of broadcast channels accessible by cable to households, and cable subscribers as a proportion of total households). For the most part, the technical quality of the services provided is second to none in the world.

The social impact of new services to be provided by evolving technologies may have been overstressed, but only in the sense of immediate accessibility. We have been convinced that immediate policy decisions must be made if Canada is not to fall behind the rest of the developed world in the exploitation of computer-communications technology. If it be true that the next generation will have access to all the commercially saleable, or socially and culturally desirable information available to mankind by pressing some buttons, policy must be devised to ensure that the information made available is not only of foreign origin. If it be true that the emergence of new technologies is opening the way to a shift of the balance of power in the manufacture of electronic equipment and the production of new forms of information production and processing, or "software," stimulus will be required for the development of Canadian research and industrial capacity in this new and promising field.

It is with these considerations in mind that we have approached the restructuring of the telecommunications and information industries in Canada. We believe that they will be dominated by foreign interests or crippled by imports if nothing is done. In the electronics manufacturing sector, the present deficit in the balance of trade is between \$1.5 and \$2 billion a year, and is increasing; the demand for new ancillary and terminal equipment in the whole field is expected to increase substantially in the next few years, and employment opportunities will be lost if we rely on imports. There is a parallel opportunity for Canadian initiatives in the burgeoning information industry with the development of software, without which there can be no demand for the new services that will become possible with the development of new techniques and systems.

3

Content and Carriage: Necessary Distinctions

Marshall McLuhan's dictum, "the medium is the message," is true only in a metaphysical sense. The fact is that any communication requires an originator of a message and a medium (sound-waves in the case of an ordinary conversation) to carry it to one or more recipients. The content of the message is distinguishable from the means by which it is carried.

Systems now being commercially developed will make it possible within a few years for everyone to have more or less instant access to any kind of information that can be made available. The word *information* is used here in a very broad sense to mean the content of any message that can be telecommunicated, and therefore includes everything from a telephone conversation to radio and television programs and computer-based intelligence of all kinds. In the simplest case, the telephone conversation, all that is required is an originator, a carriage service, and a respondent, but several distinct elements are necessary for more complex forms of telecommunication.

First, there must be a producer of information (facts, data, entertainment). Then there must be a programmer, or provider of a service giving access to proprietary information of a particular kind.¹ Next there must be a carrier to convey the content of the

¹ The word 'proprietary' is used here in a special sense, meaning that the provider has a right to make it available for telecommunication. A Shakespeare play, for example, which is in the public domain, is produced by someone and a provider may acquire a proprietary right in the production; similarly, the provider of a databank has a proprietary right to grant access to its contents.

message. Finally, there must be a recipient or respondent having access to the carrier system.

Two further distinctions must be recognized. Some modes of communication are interactive, requiring two-way carriage, while others require only one-way facilities. Telephone calls, for instance, require a switched network enabling the originator to reach any other subscriber. Telegraph systems, on the other hand, do not require switched networks; a message is stored, forwarded, and delivered; any reply is a separate transaction. Broadcasting by means of the Hertzian waves is an exception to the need for a carrier system, for the signals are carried over the air directly to the radio and television receivers of the audience; the case has been altered by the rapid development of coaxial-cable systems which perform a carrier function by receiving broadcast signals off the air and distributing them by cable to paying customers.

Before discussing the relations between producers and providers (or programmers) of content on the one hand and the carriers on the other, a distinction must be drawn between what may be termed private messages and public information. Private content may be defined as direct, person-to-person, person-to-machine, and machine-to-machine messages. Examples are telephone calls, Telex and TWX, telegrams, private lines, and facilities for access to private databanks or data-processing facilities programmed for private purposes. For all these, the producer and the provider are one and the same, and the carrier has a clear obligation to do no more than pick up and deliver messages without interference (other than whatever technical handling of the message, such as coding or conversion to analog or digital forms and reconvertng, may be necessary for efficient transmission).

Public content may be defined as information intended for direct reception by the general public, whether free or on payment. In each case, there has to be a producer and a provider as well as a carrier. The services provided fall into three clearly defined classes, and a fourth (alarm systems, meter reading and recording) that may be treated as a special case. The principal examples in those four classes can now be analyzed as a basis for an examination of the present and possible future structures for telecommunications; for each class of content, there is an indication of actual and potential producers, providers, carriers, and customers.

1 *One-way Information Services*

Producers: Compilers or proprietors of information

Providers: Service undertakings providing access to information in the public domain or acquired from producers (databanks holding updated static information, time signals, road and weather reports, advertisements, news bulletins, audio or video substitutes for the print media)

Carriers: Telephone companies
Telegraph companies
Cable companies
Broadcasters

Customers: Anyone having equipment (telephone, TWX or Telex receiver, television set) capable of receiving messages on the carriage system selected by the provider, on demand and either free or for payment of a subscription.

2 *Two-way (Computer-based) Information Services*

Producers: Compilers or proprietors of information

Providers: Service undertakings providing access to computer-based 'search and find' sources of information, and offering data-processing services

Carriers: Telephone companies
Telegraph companies
Cable companies

Customers: As for one-way information services, with the addition for some services of a compatible computer to communicate with the provider's computer; services available on demand, and almost exclusively for payment for individual transactions.

3 *Radio and Television*

a) *Over-the-air broadcasting:*

Producers: Broadcasting stations and networks
Film makers

Independent television production companies
Phonograph record makers

Providers: Broadcasting stations and networks

Carriers: The assigned radio frequencies

Customers: Everyone having a receiver capable of picking up signals within the coverage area of a broadcasting transmitter

b) *Cable television:*

Producers: Producers of programs broadcast by stations receivable on a community antenna
Cable companies
Film makers

Independent television program producers

Radio and television organizations producing programs for cable distribution only

Providers: Broadcasting stations and networks whose signals are carried by cable
Cable companies which program some of their own channels

Carriers: Cable companies
Cable companies in conjunction with telephone or telegraph companies
Telephone companies
Telegraph companies
Customers: Subscribers to the cable system

c) Pay-television:

The Committee has been asked to make recommendations on the timing and framework for the introduction of pay-TV nationally; the subject is dealt with in Chapter 8.

4 *Retroactive Services*

Fire and burglar alarm services: the producer is the fire or the burglar; the provider is the entrepreneur or the carrier offering the service; the carrier may equally well be a telephone company or a cable company, the recipient being the fire or police station; and the customer is the subscriber to the service.

Meter-reading and recording: the producer is the meter; the provider is the public utility that installs the meter; the carrier may equally well be a telephone company or a cable company; and the customer is the public utility.

In business premises, an alternative carrier might be the telegraph company.

It has been generally accepted that telephone (or "voice") service using a switched network has the nature of a "natural monopoly," providing opportunity for cross-subsidization between profitable and unprofitable operations. The latter are provided in response to a requirement, similar to that imposed on a public utility, of equitable access for all who can pay, at similar rates for similar services and free from any form of discrimination; this type of service is usually best regulated on a "rate-of-return" basis. Other services, such as private lines and access to databanks and data-processing facilities, have been the subject of competition between the telephone companies and Canadian National/Canadian Pacific Telecommunications (CNCP). Public telegraph service is still an exclusive preserve of CNCP, which competes with the telephone companies for other telegraph traffic through their respective Telex and TWX systems. Hovering in the background are the cable companies if they are to be treated as carriers (a topic pursued in Chapter 4), which could provide some of these "non-voice" services.

The foregoing analysis of the components of communications involving public content shows that, while there are some fairly clear-cut areas for the provision of carriage on a competitive but perhaps regulated basis, there are others in which confusion has begun to appear in the distinctions between producers and pro-

viders, and between them and carriers, in the provision of television and information services. In all these areas, it is the cable companies that have the most ambiguous status, for they now have the facilities and resources to be producers, providers, and carriers simultaneously.

4

Changing the Status of the Cable Industry

The need to distinguish between carriage and content is perhaps best illustrated by the story of the Persian general who ordered the execution of the messenger who brought bad news. The lesson is that a carrier should not be held responsible for the content of the information he receives and delivers; conversely, a carrier must not be permitted to tamper with the information entrusted to him for transmission. By an extension of this argument into the field of telecommunication, it is a desirable principle that a carrier should not be permitted to use its technological resources to compete with those who have to depend on its services. In these respects, the cable industry is in an anomalous position. A cable company is able to produce and distribute television programming of its own, potentially in competition with the signals of the broadcasting stations and networks it distributes, and is not subject to regulation on the principles that are accepted as applicable to other telecommunications carriers and to public utilities. The Committee has been specifically asked to report and make recommendations on "the status of the cable companies in relation to broadcasting and to the carriers" We have concluded that it is first necessary to consider the position of the cable companies with regard to the applicability of the general principle that the operations of content and carriage undertakings should be separated.

The principle of content and carriage separation already governs the operations of the federally regulated telephone companies and CNCP. They are, by law in most cases, required to carry the message of any potential customer without unjust

discrimination, at fair and equitable rates for similar services, and without interfering with the content of the messages carried.

The regulatory principles applicable to carriage and content are quite distinct. For carriage, the public concern is, for the most part, the right to have access on fair and equitable terms to services provided by an undertaking enjoying monopoly privileges. On the other hand, any interference with content by the State is justifiable on few grounds. It is of course legitimate to require compliance with generally applicable laws on such matters as obscenity and defamation, or with regard to public safety. It may also be legitimate to make rules about content, of a general kind, where its delivery involves the use of a scarce medium, such as the radio-frequency spectrum, so as to achieve a proper balance in the broadcast content without interfering directly with freedom of expression; however, the justification for the extensive regulation of radio and television programming may be of declining validity as the number of available channels increases. Where there is a sufficiency of channels, as there already is for the transmission and exchange of data, what is essential is to ensure a right to non-discriminatory freedom of access for all comers at approved tariff rates.

The concept of a telecommunications carrier as a public utility rests on the provision of transmission facilities for the use of others. In most cases, broadcasters operate their own transmission facilities, but they do not qualify as public carriers because they are not in a position to offer the use of those facilities to other parties. They are licensed to use particular frequencies, and their broadcasts are receivable by anybody within range, as are the signals of their competitors; this is quite different from the monopoly enjoyed by a telephone company and the exclusive right of a cable company to distribute broadcast signals in an identified geographical area free from any competition whatsoever. The function of the cable companies is to distribute broadcast signals to their subscribers who pay for the reception and carriage services involved. The ambiguity of the status of the cable industry lies in its carriage of services of others within a geographically determined franchise area, whether those services are related to broadcasting as at present or to informatics, as expected. In that capacity, the cable industry would be in competition with the telephone companies and CNCP for the provision of different kinds of data service. This raises the question of how they should then be regulated.

The exercise of a monopoly subject to rate regulation makes it possible to offset part of the revenue from a profitable service against the cost of a less profitable service, or to extend the latter to areas where its cost would otherwise be prohibitive. This form of cross-subsidization, which is often clearly in the public interest, makes it possible to ensure that essential telecommunication services are made available in all but the most remote parts of the country without undue disparity of cost to the customer. Given that a cable company has been granted a territorial monopoly, it should

be regulated on a rate-of-return basis, following the model of the common carrier.

The principal business of cable companies is handling broadcast signals; it is for this reason that they are regulated by the CRTC under the provisions of the Broadcasting Act. In addition, they are increasingly becoming involved in the production of television programs that have not originally been broadcast; in this connection, it should be recalled that it is only the use of a broadcasting receiving antenna that subjects them to regulation under the Broadcasting Act (and, incidentally, to federal jurisdiction). As more people gain access to more channels with the use of converters, this trend is likely to continue and expand; the cable companies themselves state that they hope to produce, or participate in the production of, high-quality television programs with a large element of Canadian content. At present, the CRTC is empowered to regulate them only as "broadcasting receiving undertakings," and does so on some sort of a "value-for-service" basis that has not so far been effective in requiring the more affluent cable companies to contribute to the cost of quality television production.

In the not too distant future, the cable companies, with their capacity for video carriage, may be expected to compete, through direct-feed programming, with the print media, carrying news, classified ads, audio-visual substitutes for newspaper and magazine features, alternative versions of the yellow pages in telephone directories, and other material. In such circumstances it could be argued that they should be subject to the obligations of a public carrier: just and equitable rates, fair access without discrimination, extension of service to less profitable areas, and regulation on rate of return. This would raise the question, if they are to retain their right to produce and provide television programs, of whether it would be feasible to regulate a single corporate entity on one regulatory principle for part of its operations and on another principle for other operations. Counsel for the Committee gave the opinion that this would present no great difficulty, provided that action were taken at an early stage to establish a formula for cost separation of the distinct operations of broadcast distribution and public carriage.

Separation of content from carriage would facilitate effective regulation on both sides of the fence, ensuring a fair deal for the carriers' customers by providing equitable access for all at just and reasonable rates, and by eliminating discrimination that could be concealed if the carriers were allowed to compete with their customers, while leaving the content free from any regulation that is not required to achieve social and cultural objectives.

Appearing before the Committee, the telephone companies were unanimous in approving the separation of carriage and content, subject to some few authorized exceptions. The cable companies, in general, professed a failure to understand the problem, and showed an almost total unwillingness to give serious

consideration to anything but the *status quo*. CNCP opposed the principle on the ground, that if the cable companies were to be allowed to engage in both carriage and content, so should the CNCP.

It is necessary to draw a distinction between content services and the equipment services that a carrier may offer. There should be no bar, for instance, to a telephone or telegraph carrier selling or leasing equipment enabling its customers to make the best use of its carriage facilities (e.g., Touchtone telephone instruments, telewriters, or data input and output terminals); such equipment may in fact be a critical component of the content service to be provided. The question whether others should be allowed to compete for the provision of such equipment raises complex issues. Similarly, a cable company might be allowed to sell or lease converters, for instance, as part of its distribution or service.

The Committee spent a lot of time examining the merits of establishing the separation of carriage from content as a generally applicable principle, and looked in particular at what seemed to be seven more or less practical options. These are as follows:

- 1 Preservation of the *status quo*, with cable engaging in content production and programming as well as in carriage under regulation, and with traditional carriers limited to carriage only.
- 2 Absolute separation with no public carrier engaging in the provision of any content of any kind at all.
- 3 Removal of all restrictions, permitting any carrier to offer any kind of content service.
- 4 Division of the market, by restricting the cable companies to the distribution of broadcast and direct feed television and leaving the carriage of new services to the traditional carriers.
- 5 Application of the separation principle, but with exemptions for true arm's length affiliates. Cable companies and other carriers wishing to engage in content operations would have to do so through genuine arm's length subsidiaries with separate boards of directors, separate management, and full cost separation.
- 6 Application of the separation principle, with provision for exceptions authorized by the regulatory body. Under this option public carriers might be permitted to provide content services particularly well suited to the technological resources of the carrier concerned.
- 7 A combination of 5 and 6: the application of the principle of separation with authorized exceptions, as in 6, through arm's length subsidiaries, as in 5, of content services particularly well suited to the technological resources of the carrier concerned. This approach is favored by the Committee.

This last approach would have the same advantage as option 6, in that no immediate disruption of the cable industry would result,

and would facilitate the transition period of adjustment to public-carrier status for the cable companies. Moreover, during this transition period the cable companies might be permitted to offer content services not yet being offered by other undertakings provided that access at fair and equitable rates be made available without discrimination to all who demand it. The CRTC would be in a position to guide the restructuring of the cable industry during the transition period so as to ensure the widest possible access to the new information services that are now being rapidly developed, particularly those related to the Telidon and other Videotex systems.

In Chapter 1 we mentioned that there are well over 400 cable companies operating in Canada, and it may be thought that to regulate them all on a rate-of-return basis would create an administrative monster of some kind. But many of them are small and have relatively few subscribers; in most of these cases, there are no resources available for program production and the size of the market in the licensed area would not make it worthwhile to offer public carriage services. Such cable companies would continue to distribute broadcast programming as their sole function; the effect on them of rate-of-return regulation would differ from the present method only in being more precise. It also seems likely that a larger cable company entering into public carriage would seek to extend the market by acquiring control of small neighbouring franchises; the effect of our proposals in general would probably lead to a gradual restructuring of the cable industry into a smaller number of units, a form of rationalization that would, we believe, be beneficial to the public.

The Committee has given a lot of time to the consideration of this complex problem and has come to the conclusion that no solution is likely to be perfect or to please everyone. But we have also concluded that some policy decision is urgently needed to resolve some of the difficulties of dealing with the cable industry as a hybrid regulated on a different basis than that applied to the established carriers.

Recommendation 1:

a) Given that cable companies have been granted territorial service monopolies, they should be regulated on a rate-of-return basis.

b) To this end, action should be taken to amend Bill C-16 for a new Telecommunications Act so as to allow the CRTC to regulate cable companies both as broadcasting receiving undertakings and as telecommunication carriers.

c) For the purposes of implementation of a), the first cable companies to be regulated as telecommunication carriers should be those offering non-broadcast services which they are not now authorized to offer, such as fire and burglar alarm services, Telidon, etc.

d) Cable companies should be allowed to provide non-broadcast services other than telecommunications carriage. When they do so, they should be

required to incorporate a separate company for that purpose; if the separate company has the same ownership as the cable company, it should have a separate management and maintain a relationship sufficiently distant to ensure that fair access can be afforded to all competitors who wish to use the cable company's facilities. Under the amended legislation, the cable companies would, in their capacity as telecommunication carriers, be required to offer public access to their services and facilities, without discrimination and at just and reasonable rates.

e) The CRTC should, in preparation for the eventual regulation of cable companies as carriers, institute effective cost-separation procedures by the cable companies, so that the cost of distributing broadcast signals received off-air, as directed by the CRTC, can be identified as one of the costs to be included in the rate base.

5

The Carriage Industry

Canada, like the United States but unlike almost all other countries, has left the carriage of telecommunications to private enterprise rather than establish a government agency exercising an exclusive monopoly; an exception to this statement, which is true for Canada as a whole, is afforded by the government-owned telephone systems in Manitoba, Saskatchewan, and Alberta, and Canadian National Telecommunications. The results of these developments present what appears at first sight to be a strangely complex system.

There are still more than 300 telephone companies operating in Canada, of which the great majority are relatively small. The backbone of the Canadian switched telephone network is the Trans-Canada Telephone System (TCTS), a voluntary association of the eight companies (plus Telesat) that provide most of the telephone service in each of the provinces. Bell Canada, the British Columbia Telephone Company, and the telephone services provided by Canadian National Telecommunications in parts of Newfoundland and in the Yukon Territory are regulated by the CRTC; all the others are subject to provincial jurisdiction. While there is still room for a great deal of improvement of service in some rural areas, the Canadian telephone system, despite its fragmented composition, operates with a high standard of efficiency and quality. For convenience, in this chapter we shall refer to the telephone system as a whole as the TCTS, which is the instrument by which connections can be made between all parts of Canada and the rest of the world.

The telecommunications services of the Canadian Pacific and

Canadian National railway systems started by providing telegraph service but have since branched out into other forms of telecommunications, including the leasing of private lines. Now operating as a consortium, subject to federal regulation, CNCP owns a coast-to-coast microwave system in parallel with those of TCTS, and is seeking access to the local distribution facilities of the telephone companies; a decision on this matter by the CRTC is awaited but, should this interconnection be authorized, it would have no mandatory validity for provincially regulated telephone companies.

The advent of satellite communications led to the incorporation of Telesat Canada, which is owned in equal shares by the federal government and the telecommunications carriers, and is regulated by the CRTC. A member of TCTS, Telesat Canada is a *carrier's carrier*¹ in that its principal customers are other carriers, and provides yet another all-Canada facility for long-distance communications.

Finally, overseas service is provided by Teleglobe Canada using submarine cables and communications satellites. The corporation, which is regulated by the CRTC, is the agent of the federal government in the Intelsat consortium which operates the international communications satellite network.

It has been customary in the past to regard the switched telephone network as a "natural monopoly," but the beneficiaries of that monopoly, the telephone companies, are in competition with CNCP and Telesat Canada for the provision of other telecommunications services. In theory it would be possible to regulate switched telephone service on a rate-of-return basis while opening the door to competition for other services through instituting strict arrangements for cost separation, but this would be a formidable undertaking in relation to the established carriers; a cost-separation study set up by the Canadian Transport Commission several years ago and carried on by the CRTC is not expected to produce a report and recommendations until late this year or early in 1980.

The cable companies are waiting in the wings to join and compete with this already large cast of characters. Each has, in a sense, a monopoly in the exclusive right within its licensed area to distribute television signals originally broadcast over the air and received by the cable company's antenna; it must be borne in mind, however, that television programs that have never been broadcast can also be distributed, conceivably but improbably by other entrepreneurs, and that the cable companies will be in competition within their franchised areas with other carriers in the provision of new services. As we have explained in Chapter 4, the institution of strict cost-separation procedures for cable companies could be

1 Telesat Canada also carries for the CBC at present. Under the TCTS-Telesat agreement, in future, Telesat will be permitted to lease channels directly only to the "approved carriers" listed in Schedule I of the Telesat Canada Act. When the CBC contract expires in 1980, its programming will be carried on a TCTS channel because the CBC is not an "approved carrier."

feasible provided that action be not too long delayed.

In the technologies involved in telecommunications carriage, we find wide areas of overlap. Any resulting problems are, for the most part, to be found in the local distribution systems rather than in long-distance carriage, and it is to the local aspect that attention must be given. The telephone companies provide local voice, message, data, and private-line services. CNCP provides message, data, and private-line services but has not hitherto been given access to the voice-distribution facilities of the telephone companies. The coaxial cable of the cable companies is capable of carrying all one-way services and could be adapted at substantial expense to carry two-way interactive services. In urban and industrial areas, non-voice services are virtually all provided by the telephone companies and CNCP; a cable company may have a few drops for television sets in offices, but generally speaking does not yet represent any serious competition for non-broadcasting services. In residential areas, however, the cable companies are already in a position of advantage for the provision of the so-called "new services." They can give access in homes to a wide variety of information services, provided that there is some information available for distribution.

Comparatively recent technological achievements have included a range of delivery systems for information of all kinds, which fall into two main classes. The first provides access to a large volume of information stored in databanks, which is continuously available on demand and can be carried in any mode, including off-air transmission; the customer can select the page or pages of information that he requires for audio or video delivery. The second gives two-way interactive communication to computer-based databanks and data-processing services; the computer interacting on a search-and-find basis can give access to any compatible databank in the world. Canada is in an advantageous position in this field with its Telidon system, developed by the federal Communications Research Centre, which can deliver both kinds of service and is widely acknowledged to be superior to any similar system in the world. Interactive Telidon service can be delivered by copper loops, permitting alphanumeric (letters and figures) and alphagraphic (which includes diagrams) display on a video screen. The plant of the cable companies could at present only deliver one-way Telidon information services. The local delivery of Telidon service is thus at least potentially wide open to competition among the telephone companies, CNCP, and the cable companies.

As recently as seven or eight years ago, the foregoing outline would have covered almost the whole range of modes of telecommunications; the advances then anticipated were greatly increased coaxial-cable capacity and the use of millimetre-wave transmission for local delivery. A new technology, fibre-optics, has emerged. Drawn glass transmitting light is capable of carrying an enormous volume of signals, up to 80 television transmissions or perhaps

more than 100,000 two-way voice circuits. The principal manufacturer of the special glass is the Corning company in the United States; in Canada special drawing processes have been developed by Northern Telecom, and its products are undergoing field trials.

At present, the cost of fibre-optics is several times as high as that of copper loops; it has been suggested that the costs of each will be much the same by about 1985. Further development will be required of amplifier and ancillary equipment. It seems that, if all goes well, fibre-optics will first be used for trunks, and then perhaps in new suburban areas. Having regard to the fact that the present plant of the established carriers represents an investment of over \$6 billion, and that the plant of the cable companies represents an investment of over \$420 million, it seems probable that optic fibres will be used, for a long time, only for extensions of service or replacement of obsolescent plant. Some of the plant still in use by the established carriers is more than fifty years old, and the cable plant is likely to be serviceable for at least two or three decades. The technology is only now undergoing field trials on a very small scale in Yorkville and Elie, Manitoba. If these trials are successful, fibre-optics may well be in widespread use in the 1990s; progress should be monitored by the Department of Communications with a view to the potential benefits of plant integration.

Plant integration can be achieved through the use of other technologies, such as coaxial cables; some better technology may suddenly emerge. It cannot be denied that there would be economies if all local access were provided through unitary connections, but that is not to say that immediate action is necessary or even desirable to force the installation of integrated plant at a pace that is not dictated by practical considerations now or possible in the future.

Recommendation 2:

The pace and extent of plant integration for local delivery of telecommunications services should be determined by future technological, economic and social considerations.

The attention of the Committee has been drawn to some of the provisions of Bill C-27 to establish a Post Office corporation which, if the legislation is enacted in its present form, would inject a new and disturbing element into the already complicated field of telecommunications carriage. First, the Act would apply to "electronic and optical . . . means of transmitting mail." Second, the corporation would have the sole and exclusive privilege of collecting, transmitting, and delivering letters in Canada. Third, the corporation would be empowered (as the Postmaster General is today) to define what is meant by "a letter." Fourth, the corporation would be subject to regulation by the Canadian Transport Commission (CTC). We are disturbed by the inferences to be drawn from these provisions.

The telecommunications carriers are already providing forms

of electronic mail (Telex, TWX, Telefax, etc.) on a very large and profitable scale. The provisions of the Bill, if enacted, would place them in circumstances of intolerable uncertainty; subject only to the approval of the Governor-in-Council, the Post Office corporation might at any time define "a letter" in terms that gave it the exclusive right to provide services now being efficiently operated by the private sector. If, at some time in the future, the Post Office corporation were to have a monopoly in the carriage of electronic mail, including electronic messages now carried by the private sector, a work stoppage against the corporation could paralyze the telecommunications of the whole country. Another point that requires examination is this: whether the corporation were granted a monopoly or were competing with the private sector in offering electronic mail or message services, it is hard to see how coordination could be achieved between the CTC regulating the Post Office corporation and the CRTC regulating the private sector.

Recommendation 3:

The federal government should consider the introduction of amendments to Bill C-27 (for the creation of a Post Office corporation) with a view to clarifying the role of the corporation in the telecommunications structure as a whole, which must continue to include the private telecommunications carriers.

We can summarize the main aspects of telecommunications carriage in Canada and their probable future development. Competing for long-haul transmission are TCTS, CNCP, and Telesat Canada, with a total capacity that exceeds present traffic requirements. Three of the members of TCTS (and CNCP) are regulated by the CRTC; the other six are provincially regulated.

With the exception of off-air broadcasting, which is a special case, any class of content is being or could be carried by any of the components of the telecommunications carriage industry. This statement requires some qualification on various grounds. First, the capacity of CNCP to deliver some services locally will depend to some extent on the CRTC decision on interconnection with the facilities of the federally regulated telephone companies; whatever the decision, it will have no enforceable impact on those that are provincially regulated. Second, the validity of the statement is dependent on the acceptance and implementation of our recommendation at the end of Chapter 4 on the status of the cable industry; here again it is necessary to recall that a cablevision company distributing only direct-feed programming would almost certainly not be subject to federal regulation.

Although our terms of reference explicitly exclude questions of jurisdiction, we cannot refrain from stating the obvious: there can be no possibility of establishing a rational structure for telecommunications carriage in Canada until the federal and provincial orders of government understand the necessity for it in national

terms and agree to work together to achieve Canadian as well as regional or provincial objectives: the latter are important, but they differ from one part of our country to another and there will have to be some give and take, not only between Canada and the provinces but also among the provinces themselves.

We have, for instance, the anomaly that cross-Canada telephone rates are not directly regulated at all on an integrated basis by any regulatory body. TCTS decisions have to be unanimous. The eight (member) telephone companies argue among themselves for what they would like to get as their respective shares of the cross-Canada pie; the Crown corporations in the prairie provinces must follow the policies laid down by their governments. (In Manitoba, for instance, it is settled policy that domestic telephone rates must be cross-subsidized by other services including long-distance rates. Consequently, in cheap time a call from Ottawa to Winnipeg costs more than a call from Ottawa to Vancouver.) When they are all agreed on the split, each goes to its regulatory body to get approval of the long-distance rate it has bargained for; should one fail, it is back to the conference table. We have thought about the possibility that the provinces should be entitled to appoint members to the CRTC so that long-distance rates could be more rationally regulated. Provincially appointed members would, of course, have to serve in their individual capacities and not as agents of their respective governments, and this might be hard to achieve in practice. Some complex rules would have to be formulated to govern voting rights in some classes of hearing; for example, if only a simple majority were required, it would be regrettable if some decision affecting only, say, Saskatchewan, were carried by a majority with the representatives of the three prairie provinces dissenting. Nonetheless, we believe that some sort of solution on these lines would be worth re-examination.

Recommendation 4:

In our view the high level of long-distance telephone rates, an outgrowth of the uncoordinated regulatory process in the industry, is a barrier to national communication and understanding. We recommend that the governments and agencies involved cooperate to create a mechanism which will review long distance rates and determine that they reflect national as well as regional interests.

6

Broadcasting

RADIOCOMMUNICATION OR RADIO MEANS ANY TRANSMISSION, EMISSION OR RECEPTION OF SIGNS, SIGNALS, WRITING, IMAGES, SOUNDS OR INTELLIGENCE OF ANY NATURE BY MEANS OF ELECTROMAGNETIC WAVES PROPAGATED IN SPACE WITHOUT ARTIFICIAL GUIDE. Bill C-16, S.2(1).

BROADCASTING MEANS ANY RADIOCOMMUNICATION IN WHICH THE TRANSMISSIONS ARE INTENDED FOR DIRECT RECEPTION BY THE GENERAL PUBLIC. Bill C-16, S.2(1).

Apart from networks, there are two main classes of broadcasting undertaking: the broadcasters, known as "broadcasting transmitting undertakings"; and the cable companies distributing signals received off the air or programs they have themselves produced, known as "broadcasting receiving undertakings." It is of great importance to keep in mind that television is not exclusively broadcasting, for programs can be fed directly from the place of production into the cable distribution system without having been transmitted by Hertzian waves. A company that does not have a receiving antenna and feeds programming directly into a cable distribution system is not a "broadcasting receiving undertaking" and is not subject to the Broadcasting Act or, indeed, to federal jurisdiction at all.

The Canadian broadcasting system is declared by the Broadcasting Act to be "a single system . . . comprising public and private

elements." The public element consists of the CBC and the provincially owned broadcasting operations, at present carried on only in Quebec, Ontario, and Alberta.

It is generally accepted that television is the most powerful medium yet devised for influencing public opinion and social habits. And it may be said that the "culture" of any group of people is built on their opinions and ways of life. It follows that, while many aspects of foreign cultures should be welcomed, exclusive or even excessive exposure to foreign television has an attenuating effect on the culture of a country. This is why the decision was taken nearly fifty years ago to establish the national broadcasting service now operated by the CBC.

We came to a general agreement that the Canadian broadcasting system as a whole is not fulfilling our expectations, and not achieving the broad policy objectives set forth in the Broadcasting Act. We have asked ourselves and others why this should be: do the causes lie in the wording of the Act, in the policies of the federal government, in the regulatory and administrative policies of the CRTC, in the organization and policies of the CBC? These questions have been approached separately for the public sector and the private sector.

The Canadian Broadcasting Corporation

The Committee is unanimous in its belief that the CBC is an absolutely essential factor in the development and maintenance of a Canadian identity, and in the fostering of a regional and national Canadian culture that is the principal defence of the social and cultural sovereignty of Canada. Leaving aside any reservations we may have on certain aspects of the CBC, to which we revert later, we believe it is an institution that should be supported to the fullest possible extent by Canadian governments and citizens alike. It is obvious that the corporation, even if impeccably managed and administered, can fulfil its mandate only to the extent that it is given the resources to do so. The programming budget of the CBC represents by far the largest single item of federal expenditure in support of cultural objectives; the administrative infrastructure and facilities of the CBC must be maintained at a cost that is not immediately related to the volume of programming, and it follows that any reduction (in constant dollars) of its total operating budget falls mostly on either the quantity or quality of program production, or both.

The foregoing statement is broadly true whether the CBC is administratively top-heavy, as some say, or whether it is managed with the utmost efficiency. In the past, the CBC has often been accused of spending too much money on buildings and technical facilities and too little on programming. In defence, it has to be stressed that for many years past the federal government has given first priority to the extension of CBC television and radio coverage to as many Canadians as possible, and has been more easily tapped

for funds for that purpose than for programming: what the CBC has achieved in that regard is remarkable and full credit must be given. But this does not alter the fact that there has to be a certain level of administrative infrastructure that cannot easily be reduced at short notice. It is for this reason that every official inquiry in the past twenty-five years has strongly recommended the provision of long-term, usually five-year, financing, but no federal administration has been willing to take the legislative action that would make long-term financing a statutory obligation. There has been, we understand, some informal agreement in recent years, but this has not deterred the government from making sharp budget reductions at short notice. We are unable to understand how a corporation the size of the CBC can be expected to plan and manage rationally without any reliable knowledge of how much money is to be available for some years ahead.

Recommendation 5:

The broadcasting services provided by the CBC are the main national instruments for the preservation of Canadian social and cultural sovereignty, and should be recognized as such. The CBC should be afforded whatever means may be required to reinforce its function in that regard.

Section 3(g)(i) of the Broadcasting Act provides that the national broadcasting service should:

be a balanced service of information, enlightenment and entertainment for people of different ages, interests and tastes covering the whole range of programming in fair proportion.

In response to our enquiry, the President of the CBC said he did not think this requirement constituted an undue burden. His opinion was that, given the wide coverage of Canada by private TV, and its heavy emphasis on variety and sports programming, it will become possible for the CBC to make a gradual reduction in the volume of its programming devoted to those types of programs and devote more of its resources to programs that may have great appeal for audiences other than the mass audience. The Under-Secretary of State supported this view, inferentially, by saying that the law may be being too strictly interpreted. We believe that there will be a gradual trend towards more specialized television, enabling the CBC to give more attention to special-interest programs that may individually attract relatively small audiences but taken together may constitute a significant contribution. The CBC-II proposal is a move in that direction.

The CBC is a perennial object of attack. It is accused variously of being too highbrow, too lowbrow, and too centralized, of doing little or nothing to bridge the gap between English-speaking and French-speaking Canadians, of having an undesirably introvert

approach to program production, of being too commercial in its programming, and of being inefficiently managed and administered. We are not in a position to express detailed opinions about the justification for such accusations, but of one thing we are convinced: the cumulative impact of all these accusations and attacks is more than the facts would warrant. Obviously the time constraint under which we have been working would not have permitted us to delve into all these problems and build up a reasoned defence and guidance for improvement in the future, but we believe that this is a job that must be done with the least possible delay.

We are, therefore, proposing that a bilingual task force of not more than eight members be appointed to look at the national broadcasting service, to advise the CBC on any major aspects of its responsibilities, and to make its views public within 12 months or less.

The task force should comprise two CBC representatives, one from the English-language and the other from the French-language network. For that purpose the President of the CBC should be invited to designate three persons from the highest management levels of each network and the selection should be made from these two lists. Other members should be chosen from among professionals associated with the public broadcasting community, who would be prohibited from engaging in work for the CBC while they remain members.

The task force should concentrate its attention on the great public service challenges facing the CBC at this time of major and rapid change in the general television context in Canada. It should invite and accept briefs and submissions from any interested parties but should not be required to hold public hearings. During the course of its work, the task force should arrange for discussions and working sessions with representative groups involved in the activities of the CBC, and it should work closely with experts in the various disciplines concerned with national broadcasting.

The task force should have only one objective, to ensure that the CBC provides Canadians at all times with the best national broadcasting service which our cultural and financial resources can support.

Recommendation 6:

A task force should be appointed by the Governor-in-Council under the Inquiries Act to report on and make recommendations with regard to the management, programming, and funding policies of the Canadian Broadcasting Corporation, with particular but not exclusive reference to:

quality and diversity of programming;

“make-or-buy” policy for program production;

the reflection to each other of the two principal linguistic communities in Canada, and the promotion of exchanges between the English-language and French-language networks;

the proportion of the operational budget being devoted to program production;

the decreasing audience-share of the CBC network, in particular the English-language television network;

responsiveness to the public;

the financial resources necessary to carry out the CBC's responsibilities under the Broadcasting Act;

additional channels (off-air or on cable) to be used for CBC programming.

Broadcasting Financed by Provincial Governments

For many years, it was a firm policy of the federal government that broadcasting licences should not be issued to provincial governments or their creatures: when licensing authority was transferred to the Executive Committee of the CRTC in 1968, a formal direction in that sense was given. In 1972, a new direction was given permitting the issue of broadcasting licences to arm's length corporations established by provincial governments for the purpose of broadcasting educational programs. The CRTC must satisfy itself as to the independence of the corporation from the government of the province concerned, and the definition of educational programming is so broad that both TV-Ontario and Radio-Québec are able to fill most of the evening hours with entertainment of a very general nature. The provincial governments are a source of funds for program production which should be welcomed when funds for that purpose are in such short supply, and we believe it is time that the fiction about education programming be abandoned.

Recommendation 7:

The CRTC should be authorized to issue broadcasting licences to independent corporations established by provincial governments to operate broadcasting facilities and broadcast programs of a general character, subject to the provisions of the Broadcasting Act and the Radio Act.

The Private Sector

It is not altogether easy to define the private television sector in Canada, for more than half the private stations are affiliates of the CBC networks. But they also produce local programming for non-network time, and we therefore treat them as components of the private sector in this context. For the rest, there are the CTV network, the Global chain operating in Ontario, and a few independent English-language stations, as well as the French-language TVA network in Quebec.

Taking this group as a whole, while recognizing individual differences in markets and programming performance, we do not believe that they are doing all they could and ought to do in the way of Canadian program production. Later in Chapter 7, we suggest some ways of encouraging or requiring them to do more.

We also believe that the mandate for the private sector in the Broadcasting Act is inadequate; all that is said is this:

The programming provided by the Canadian broadcasting system (i.e., the public and private sectors together) should be varied and comprehensive and should provide reasonable, balanced opportunity for the expression of differing views on matters of public concern, and the programming provided by each broadcaster should be of high standard, using predominantly Canadian creative and other resources.

During the debate in the House of Commons on the Bill for the Broadcasting Act, there was strong pressure to impose on the private sector, as well as the CBC, a responsibility to contribute to the development of national unity, but this pressure was resisted on the ground that this was a job for the CBC and to impose it on the private broadcasters as well might restrict the opportunities for "the expression of differing views on matters of public concern." The same argument would not apply, however, to the imposition of responsibility to "provide for a continuing expression of Canadian identity" and an active contribution "to the flow and exchange of cultural and regional information and entertainment."

Recommendation 8:

Bill C-16 should be amended so as to require private broadcasters to provide, inter alia, for a continuing expression of Canadian identity and to contribute actively to the flow and exchange of cultural and regional information and entertainment, as is already the case with the CBC.

The Future of Off-Air Broadcasting

Today, more than half the homes in Canada subscribe to cable systems. The proportion is much higher in such cities as Toronto and its neighbours in south-western Ontario, and is thought to be more than 90 per cent in Vancouver. It is by no means improbable that, within a few years, a broadcaster in Vancouver, for instance, finding that his transmissions are being received, for almost all practical purposes, only by the antennas of the cable companies in the city and its suburbs, may decide to save money by giving up the use of a transmitter and feeding his programming directly into the cable systems by terrestrial connections; another advantage of doing so would be that he would no longer be subject to CRTC regulations on such matters as Canadian content and could distribute whatever programs would bring in the most money. Should action of this kind gradually spread to all heavily populated centres, there would be no programming left to be carried by the private networks, and none but that provided by the CBC to be viewed in less well populated areas, not only in those that are remote or in the north. Nobody is recommending that off-air television broadcasting be abandoned or prohibited, but the possibility that broad-

casters might one day find it more profitable to distribute their programs directly by cable is a factor that must be taken into account.

7

Canadian and Foreign Programming

The Broadcasting Act directs that our broadcasting system should be "predominantly Canadian in content and character," and the CRTC imposes Canadian-content rules for Canadian broadcasters. Nevertheless, a very high proportion of the Canadian evening audience for television watches programming that is predominantly foreign in origin. This comes about in two ways. The Canadian private broadcasters and to a lesser extent the CBC include many foreign programs in their evening schedules, and about 25 per cent of the total Canadian audience watches U.S. stations received either off the air or by cable distribution. The effect is that, in English-speaking Canada, more than 70¹ per cent of the audience from six p.m. to midnight is viewing foreign programs and films. The figure for Quebec, almost 52 per cent, is naturally much lower, but there are two interesting factors to be observed: much of the foreign programming aired on French-language stations does not derive from France but is U.S. programming dubbed into French; and it appears that French-language stations have been losing part of their share of the evening audience while the English-language stations in Quebec have maintained theirs and the U.S. stations have gained almost precisely the share that the French-language stations have lost. This has implications for the preservation of an indigenous French-language culture in Quebec, especially as there is a growing trend among young Quebecers towards the viewing of U.S. stations.

1 Canadian Radio-television and Telecommunications Commission—Special Report on Broadcasting in Canada 1968-1978. Ottawa, 1979.

For the broadcasters, of course, the advantages of showing U.S. programs are very substantial; they can be acquired at a fraction of the cost of producing similar Canadian programs, and higher rates can be charged for the associated commercials.

This predilection for watching U.S. entertainment can be explained simply. The pool of creative and performing talent in the United States may be presumed to be about ten times as large as that in Canada. It follows that, in any class of entertainment but particularly in variety, U.S. programs are likely to have that much more audience appeal than Canadian programs; this statement must be qualified, however, by a clear recognition that over the years there have been Canadian programs of such high quality as to attract a predominant share of the Canadian audience. We therefore strongly support the view that, with increased support, the audience for Canadian programming will increase as its quality continues to improve. We also believe that Canadian culture cannot be effectively protected by restrictions on access to manifestations of foreign cultures and that the best way to support Canadian culture lies in the pursuit of superior quality and the promotion of opportunity to view and appreciate the best we have.

Before dealing with these issues in detail, it is necessary to draw a distinction between foreign programs aired by Canadian broadcasters, which we shall call *imports*, and the distribution of all the programming of U.S. stations by cable, which we shall call *transplants*.

Imports of Foreign Programming

The Canadian-content rules for television and radio are complex, both in their definition of what is or is not Canadian content and in the varying times of day when they are to apply. Briefly, the CBC is required to do more than the private broadcasters and does more than is required, and the rules for both require only an average over a fixed period. There is more foreign content in prime time than at other times. The net result is that the content rules are effective only in the sense that they achieve compliance with the statutory requirement by ensuring that about 51 per cent of all programming is of Canadian origin. The fact remains that in one way or another programming viewed in the evening hours is predominantly foreign. There seem to be two main ways to deal with this phenomenon: a new approach to the Canadian-content rules; and measures to promote a larger volume of high-quality Canadian production and its programming and marketing.

Until now, Canadian-content rules have been only quantitative, expressed only in percentages and related to different periods of the broadcasting day and week. (It is to be noted that they are now much less stringent than those imposed in European countries, particularly the United Kingdom.) It is understood that the CRTC has been giving consideration to the feasibility of amending the content rules so as to give proportionately increased credit for quality. A

possible model, generally but not necessarily in detail, might be the points system adopted four or five years ago by the Australian Broadcasting Control Board.

Recommendation 9:

The CRTC should introduce a points system for measuring Canadian content combining qualitative, quantitative, and prime-time aspects, without relinquishing the present concept of a minimum quantity, but with strong emphasis on quality.

We have also given some thought to the possible desirability of applying differential standards for broadcasters in highly profitable areas and those whose profit margins are little more than marginal. This subject was addressed by the Fowler Committee in 1965 in the following terms:²

The plain fact of the matter is that Canadian content cannot be measured in terms of strict adherence to the law, for there is bad Canadian content as well as good Canadian content. A half-hour program of excellent quality may cost more than several hours of quiz-shows and the like, and will undoubtedly be worth more in this context, but will still only be chalked up as half an hour of Canadian content. We believe that, taking all these considerations into account, enforcement of Canadian content by universally applicable regulations is impractical. The individual capacity of each broadcaster should be reviewed from every angle at the time the licence is issued, and appropriate requirements for Canadian content should be made a contractual engagement as a condition of the licence itself.

The committee went on to recommend:³

... the establishment of individual station standards of program performance, which are to be made a condition of each station's licence and enforceable as such.

We appreciate that the implementation of the Fowler Committee's recommendation would entail a great deal of research and administrative work for the CRTC, and therefore do not think we are sufficiently well informed to support it in the words quoted above. We do believe, however, that the CRTC should establish classes of broadcasting stations for this purpose (under Section 16(1)(a) of the Broadcasting Act), to be used as a base for determining obligations with regard to the production of Canadian programs.

2 Report of the Advisory Committee on Broadcasting: Queen's Printer, Ottawa, 1965; p. 49.

3 *Op. cit.*, p. 64.

Recommendation 10:

The CRTC should establish classes of broadcasting stations as a base for determining the percentage of revenue, in each class, that should be devoted to program production.

The cable companies have put forward proposals for using a greater part of their revenues for program production, and there are several ways in which this could be effected. One would be to impose a levy of some kind, the proceeds to be paid into some fund from which subsidies would be paid out to program producers. A levy of \$1 a month, to be added to the subscription rates, would now produce about \$42 million a year to be used for Canadian program production. We are not in a position to determine the exact figure that might be appropriate.

We also considered what should be done with the money raised in this way. Our conclusion is that it should be paid into a central fund to be administered by the Canadian Film Development Corporation (CFDC) or a similar new agency, the use of which would be restricted to program productions to be viewed on television.

Our proposal may not be welcomed by the cable industry, but we would point out that a cable company wishing to invest in a production by an arm's length affiliate would be just as well placed as any independent producer in approaching the CFDC for assistance.

Recommendation 11:

a) Some of the revenues from cable subscription fees should be paid into a fund to be used for the production in Canada of programs to be viewed on television. All subscribers should contribute to this fund; it should be noted, however, that rate-of-return regulation for cable will mean in the case of many systems that a levy can be made for the purpose of the programming fund without increasing the present subscription fees. In some cases, the amount of the levy may have to be added to the subscription fee.

b) The Canadian Film Development Corporation (CFDC), or a new agency created for the purpose, should be empowered to receive and administer the proceeds of the levies recommended in (a) for the purpose of promoting Canadian production of programs to be viewed on television (including films), following the procedures now authorized and in use for the promotion of film production by the CFDC.

The incentives discussed so far have related only to program production, but there is room, too, for assistance in the programming and marketing of Canadian productions. There is a variety of tax measures that the government could use as incentives to promote the production, programming, and marketing of Canadian television productions.

Recommendation 12:

The federal and provincial governments should take action, as a matter of urgency, to introduce incentives to promote corporate sponsorship of Canadian television programming and to assist the production, programming, and marketing of Canadian programs and films to be shown on television. Governments should consider the possibility of tax rebates for advertising on Canadian programs.

Transplants

From the earliest days of radio broadcasting, Canada has been vulnerable to the intrusion of broadcast signals emanating from the United States. Until 1968, when strict Canadian-ownership rules were enforced, some Canadian stations were owned by U.S. interests, notably in Windsor, Ontario, which has wide off-air coverage south of the border; there were also intrusions, not in contravention of international agreements, in such places as Bellingham, Washington, covering Vancouver, Victoria and other parts of British Columbia, and Pembina, North Dakota, beaming at high power into Winnipeg. It is useful to bear in mind, before examining the impact of cable, that more than half the people of Canada can receive programming from U.S. stations directly off the air, but the quality of the signal is much improved if it is distributed by cable.

The rapid penetration of cable systems has led to the position today that over 75 per cent of Canadian homes lie in areas licensed for cable; more than 70 per cent are actually passed by cable and two-thirds of these, or well over 50 per cent of all the homes in Canada, are cable subscribers. As we have seen, a large proportion of prime-time programming by Canadian stations is of foreign origin, and of course virtually all that of U.S. stations. But despite the enormous spread of cable in the past decade, the share of the Canadian audience in the evenings that view U.S. stations has increased only from about 21 to 25 per cent in the past decade. What has happened is that ability to view U.S. stations has been carried by cable into communities many hundreds of miles from the border; penetration by Buffalo stations, for instance, reaches far up into Ontario by microwave connections, not just to Sudbury but as far as Kapuskasing and Hearst. The same thing has been happening in other parts of Canada, with odd results in distant and smaller communities; many of them have a choice of only two Canadian sources of programming, the CBC and a private station (probably a CTV affiliate), while they have a choice of four or more U.S. stations if they have cable. The cable problem is a matter of encroachment on Canadian cultural sovereignty, and also on Canadian commercial sovereignty.

There may be ways to control the amount of foreign programming shown on Canadian stations, but practically all the programming of U.S. stations is foreign. In Chapter 1 we quoted a

definition of sovereignty which, restricted for the moment to culture, would read, "Cultural sovereignty for Canada means the ability of Canadians to exercise control over the direction of cultural change." The presence of broadcasts by U.S. stations in most parts of Canada detracts from Canadian sovereignty in those terms, and that is the reason for attempts to achieve control; and it is those attempts that have aroused the complaints of the U.S. border stations.

There is something repugnant to us in the notion that, whatever the legal niceties, it is permissible to pick up someone else's property off the air and tamper with it for profit. In this regard, we think the U.S. border stations have cause to believe they are being unfairly treated. By saying this we do not mean to support the case they are making for remedial action: what has happened is that they have been deprived, in one way or another, of part of the commercial value of what they regard as their property. They argue that the Canadian cable industry has been developed largely at their expense, and assert that their present grievances are due to the failure of the federal government or the CRTC to formulate a coherent policy and, in consequence, the imposition of one defensive mechanism after another, some of them indefensible on ethical grounds.

First, we may approach the effect of S.19(1) of the Income Tax Act, which disallows advertising on U.S. stations as a deductible business expense (when the advertising is directed primarily to Canadian audiences). The U.S. border stations assert that, as a result, they lost \$9.7 million in advertising revenues from 1975 to 1977.⁴ As a frame of reference, we note that in 1975, total U.S. TV advertising revenues amounted to \$6.8 billion, while total Canadian TV advertising revenues amounted to only \$376 million.⁵

The purpose of Bill C-58, in relation to broadcasting, was to divert advertising revenue from U.S. to Canadian stations, and it is not possible to measure precisely how successful it has been in that regard. Canadian broadcasters point out that there are too many variables in the equation (rising costs, different programming, and so on) and for this reason the estimated loss of \$9.7 million in two years by the U.S. stations must be treated with some reserve.

Taking careful account of all the arguments put before us, we do not feel moved to recommend any change in the sense of S.19.(1) of the Income Tax Act.

Different considerations apply to the actions taken by the CRTC, which include random deletion of commercials and simultaneous substitution. The CRTC has power to order cable companies to delete commercials, at random and without notice, from the programming they distribute from U.S. stations; generally speaking, the vacant slots are filled only with public service an-

4 Source: Brief submitted by the Licensees of 14 United States Border Television Stations (referred to hereafter as 'U.S. Border Brief').

5 Source: Brief submitted by the Canadian Association of Broadcasters (CAB).

nouncements. This action is believed to be a deterrent to advertising on U.S. stations intended for Canadian markets, and naturally arouses strong opposition from the U.S. stations concerned while not adding much to the revenues of Canadian stations. The power to order random deletion has been sparingly used by the CRTC, and further action has been deferred pending intergovernmental negotiations. It is understandable that this defensive measure is regarded by the U.S. stations as unfair. Simultaneous substitution is less objectionable; when a program is being shown at the same time on both a Canadian and a U.S. station, the cable operator is authorized, if so requested by the Canadian station, to blank out the U.S. station and substitute the Canadian station, so that the viewer sees only the commercials of the latter.

The issues here are exceedingly complex and cannot be treated in every aspect in this report. To start with, the owners of a program sell distribution rights in specified areas. In the United States, FCC regulations provide "exclusivity protection" for a station holding distribution rights to a program, which involves restrictions on a local cable company showing the same program brought in from some distant station. No such protection is at present available to Canadian stations against the distribution from the U.S. of a program to which it holds exclusive showing rights in a specified area. KVOS Bellingham, Washington, acquires rights in southern British Columbia, but the Buffalo stations have not acquired Ontario rights; it is significant that KVOS has offered to put up money for Canadian program production but the Buffalo stations have not felt that they are under any such obligation. A curious episode was an application by Global to black out certain programs from its transmitter near Windsor, Ontario, because a Detroit station held the rights for the Windsor area. The Committee's counsel advises that there is no Canadian statute that could be used to prevent U.S. stations from buying Canadian rights and, if there were, it would have no extra-territorial effect. Canadian broadcast signals that are receivable in the United States are not protected by the FCC.

The simple fact is that a broadcasting station, wherever it may be located, does not own a program it has procured but only the showing rights, and those are sold to the stations by the owners. The U.S. border stations complain that the owners charge them higher rates because of their cable spillover coverage in Canada, and that they therefore have a right to recoup by charging higher rates to advertisers; in fact, if those advertising announcements were consistently deleted for the Canadian audience, the price asked of the U.S. border stations for distribution rights would be lower.

The commercial aspects of this problem can be simply stated. A broadcaster does not sell programs to audiences; he procures (or produces) programs and sells audiences to advertisers. The larger the audience, the higher the price for distribution rights and the higher the advertising rates. Canadian broadcasters buy American

programs because they attract large audiences; the advertising rates charged are therefore higher, and the resultant revenue helps to pay for Canadian program production. It is estimated that the Canadian broadcasting industry buys distribution rights for U.S. programs to the tune of \$50 million a year, a sum that represents about 20 per cent of all U.S. producers' foreign sales.⁶

It might be thought that protection of this material could be given by copyright law. But this is not so, and that is a matter of great international concern in relation to satellite broadcasting and domestic reception. The U.S. law on copyright was revised a year or two ago, but is still regarded as inadequate to provide a solution to the problem of protecting foreign distribution rights; the Canadian Copyright Act provides no such protection. As Recommendation 14 suggests, we believe the government should give urgent attention to copyright, for the protection of this and all other cultural property.

Recommendation 13:

The problem of transplants — American stations carried in their entirety on Canadian cable systems — presents a perplexing mixture of conflicting needs, desires and rights.

a) The existence of the transplant system is inherently unfair to Canadian private stations and the CBC. The showing of U.S. programs on the transplants detracts from the commercial value of those programs to Canadian stations, even though the Canadian stations have bought Canadian rights to them. The Committee has concern that a time may arrive when, most of the country having been reached by cable, there will be little or no commercial value to Canadian stations in using U.S. programs.

b) In addition the transplants on cable spread foreign advertising far beyond the border areas and make it unnecessary in some cases for international corporations to buy advertising in Canada; they are covered by the "overflow" of their American parent companies' advertising.

c) The majority of the Committee proposes that when a Canadian broadcaster buys exclusive rights to a program for a given area, cable companies in that area be required to respect these rights and the CRTC to enforce them. This action should not be taken before public discussion and debate, including CRTC hearings.⁷

Two members of the Committee (Clyne, Fulford) firmly hold the view that this would be unacceptable to Canadian viewers who regard the watching of transplants as an incremental right, given the technological capability of cable.

d) It has been proposed to the Committee that Canadian cable systems simply delete all commercials from U.S. transplants. The Committee

6 *Op.cit.*

7 We note that in the United States the ownership of programs within a given area is protected by law and practice and that cable systems routinely black out programs from distant stations in order to protect the rights of local stations. Were Canadian cable companies to follow a similar rule, it would not be at variance with U.S. practice.

rejected this suggestion on the grounds that it would amount to unethical treatment of the U.S. stations.

e) The Committee holds the view that eventually this issue may be resolved in terms of property ownership under a revised copyright law.

Recommendation 14:

The federal government, which has traditionally exercised jurisdiction in the field of copyright, should urgently undertake a full revision of the copyright law, having regard to the extensive report made by Keyes and Brunet at the request of the Department of Consumer and Corporate Affairs and published in 1977.

The CRTC has generally leaned to permitting each cable company to carry one station representing each of the three principal U.S. networks plus a station carrying the Public Broadcasting Service (the 3 + 1 formula), but has not established this as a universal restriction; some Canadian cable companies distribute five or six U.S. stations. In heavily cabled areas, particularly south-eastern Ontario and British Columbia, difficulties arise when a new Canadian station comes on the air and displaces a popular U.S. station from a "clear" channel; the cry is that people are being deprived of the opportunity to view what they want to view. The Committee has some sympathy with this view, and believes that there would be less outcry if converter service were available to all, for the use of a converter would provide a "clear" channel for a displaced U.S. station. It has been suggested that most cable companies should sell or lease converters to their subscribers, the rental charge being added to the monthly subscription; subscribers owning their own converters would simply not be charged the extra amount.

Recommendation 15:

The CRTC, in authorizing the carriage of television stations by cable, should continue to give precedence to Canadian stations, and should not increase beyond four the number of U.S. stations that may be distributed.

Mr. Clyne, Mr. Fournier and Mr. Beigie have reservations about this recommendation, and would allow the CRTC to have discretion as to the number of U.S. stations that may be distributed.

The treatment of the US border stations by Canada has created serious friction between the two countries, which could result in retaliatory measures in other fields of enterprise, and it is clear that there can be no solution that would satisfy the interests of all parties. The subject has been a matter of discussion between officials of the Canadian Department of External Affairs and the U.S. State Department, and in 1976 Canada made proposals for, *inter alia*, a bilateral treaty on cross-border advertising, but these were unacceptable for the United States. At this point we should like to quote from the brief submitted to us by the U.S. border stations:

... we urge that the problems of the Canadian broadcasting

system (in this particular matter) can only be resolved in the context of an amicable understanding between the two countries.

We concur in this statement.

Recommendation 16:

The federal government should renew the discussions with the United States with a view to resolving the border television dispute at an early date.

8

Pay-Television

In our terms of reference we have been asked to make recommendations on "the framework and timing for the introduction of pay-television nationally." We take it that the inclusion of the word "nationally" implies that we already have pay-television in Canada, but it has been allowed to come into existence on a piecemeal basis. Cable TV is itself a form of pay-TV, in which the subscriber pays a set rate for all the channels carried by the system. Beyond this, we take pay-TV to mean payment either for a special channel (pay-per-channel) or for access to a particular program on demand (pay-per-program). A pay-per-channel system has been in operation in Saskatchewan, and there are a few pay-per-program systems giving service, mainly in hotels, in Ontario and the west. Quebec issued pay-TV regulations in August 1978, related to the establishment of a single non-profit network, independent of the government, which would be the exclusive supplier of programs to local exhibitors; all elements of the system would be regulated by the Public Service Board.

It was pointed out in Chapter 6 that television is not exclusively related to broadcasting, for coaxial-cable systems can distribute programs that have not been broadcast and, as in the case of films, may not have been originally intended for broadcasting. It is only if the cable company operates a receiving antenna that it is subject to federal regulation. Thus the pay-TV operation in Saskatchewan does not contravene any federal legislation and is not subject to regulation by the CRTC; the government of the province has helped the establishment of a Cooperative Programming Network

which procures programming from Home Box Office (HBO) in New York City and mixes this with acquired Canadian programs on three channels provided by SaskTel, the provincial Crown corporation that operates the telephone system in the province.

We have heard no evidence that there is at present any substantial demand for the early introduction of pay-TV. There is thus no need for hasty action, but we believe that the demand will grow and that it would be wise to establish a strategic policy for its eventual introduction.

Much of the opposition to pay-TV is related to the fear that it will further fragment the television audience and greatly enlarge the volume of foreign programming made available to Canadian viewers. An opposite view is that Canadian content rules could be applied and that pay-TV would provide alternative viewing to those who do not like what is available, the programming that has the greatest appeal for the mass audience. We believe that, as more channels become available, fragmentation of the television audience is inevitable, and may perhaps be desirable. A program that attracts 250,000 viewers may be negligible in the rating system but might still attract sponsorship or advertising directed to special-interest audiences. Opera and ballet, for instance, attract sell-out audiences in most Canadian theatres (at very high box-office prices) and are often supported or sponsored by large corporations. It is possible that, although these art forms have little or no mass appeal, perhaps hundreds of thousands of Canadians might be willing to pay, say, one dollar to view a televised performance. In New York, the Metropolitan Opera puts live performances on cable for distribution as television, and the resultant revenue goes some way to meet the deficit that is otherwise unavoidable every time the curtain goes up on an opera performance. As regards Canadian content, appropriate regulations, not necessarily the same as those applied to broadcasters, could easily be devised and applied.

The cable companies are eager to get into pay-TV as quickly as possible, foreseeing a profitable future. They suggest that part of the resultant revenue should be used by them to produce, or contribute to the production of, high-quality Canadian television programs, and to participate with U.S. producers in the financing of co-productions that would be marketable in the United States and perhaps other countries.

The cable companies are strongly in favour of a pay-per-channel system. At least one reason is that this could be introduced with only a minimal need for modification of their plant and billing procedures. A pay-per-program system, on the other hand, might entail relatively more extensive and costly modifications.

After careful consideration, we have come to the conclusion that a pay-per-program system would be best suited to Canadian circumstances. This would provide a new television outlet for independent Canadian producers and film-makers, and would apply a competitive stimulus and opportunities for new ideas. Pay-per-

channel would entail the continuing subjection of television audiences to lowest-common-denominator programming; pay-per-program would attract audiences, relatively small perhaps, but still substantial, for Canadian and foreign productions of the highest quality. These would include those Canadian productions that are most likely to foster a Canadian cultural identity.

Recommendation 17:

- a) Pay-per-program television should be recognized as more appropriate for Canada than pay-per-channel. Pay-television should be introduced as soon as the technology for pay-per-program is developed.
- b) Pay-television should be provided by licensed Canadian-owned program undertakings.
- c) Attention should be given to the elaboration of Canadian-content rules appropriate for pay-TV.
- d) There should be a levy on profits from pay-TV, to be used for Canadian programming, with the amount to be determined by the CRTC.

9

Satellite Communications

Almost everyone in Canada can now receive radio broadcasts. The CBC television networks reach about 98 per cent of the population, and the private sector reaches some 96 per cent. This sounds like a fine achievement, but there are Canadians who justifiably resent being treated as percentages; the fact is that there must be about a quarter of a million Canadians who cannot receive television at all by conventional transmission, and about the same number again who cannot receive alternative service. These figures would certainly be enlarged if broken down by language of broadcasting in relation to language in daily use. These "other Canadians" are not all resident in the north or in remote communities; as lately as 1977, there were areas in Prince Edward Island where, surprisingly, no off-air television could be received.

There are also substantial numbers of Canadians, perhaps as many as five million, living in communities that are relatively small, for whom cable service is unlikely at any time in the future because cable installation would not be profitable. So long as only off-air television is available, they will have a choice of only two networks, as compared with the much wider options available to those living in larger communities. The only way in which they might be given more choice would be by satellite transmission to a community antenna, probably cooperatively owned, from which signals could be distributed by cable or, perhaps more economically, by a very low power transmitter covering only the community itself and the immediately surrounding area.

It is not only television that many remote communities have

lacked in the past; telecommunications satellites are already giving some access to the telephone network and other services offered by the telecommunications carriers, and this access will gradually be provided in many other areas.

If it is accepted that efficient means of communication between all parts of Canada are essential to the preservation of Canadian sovereignty, the importance of satellite communications needs no further emphasis.

Telesat Canada is a corporation owned 50 per cent by the federal government and 50 per cent by the "approved carriers." It operates what is still the largest domestic communications satellite system in the world. It is regarded as a "carrier's carrier," and its customers are the telecommunications carriers (including Teleglobe Canada) and the CBC. Telesat operates as a wholesaler of transmission facilities, and has adopted a policy of not leasing anything less than a single channel to any customer; the telecommunications carriers may be regarded, in this context, as retailers, and it is possible to rent part-time access to a channel from one of them. The cost of renting a whole channel is at present \$2 million a year. Telesat is required, by its charter, to operate on a commercial basis, and has shown a modest profit in recent years. The corporation carries whatever its customers want to transmit, over which it has no control.

The lease of a whole channel covers guaranteed service; to fulfil the guarantee, Telesat must have spare capacity that can be brought instantly into use in the event of a transponder failure or a total disaster for a loaded satellite.

Many representations have been made to the Committee that Telesat has a great deal of unused capacity which, if it were put to use, would make it possible to reduce the rates charged to everyone; they draw attention to the fact that satellite channels can be leased at much lower rates in the United States, disregarding among other factors the point that the service offered there is not, for the most part, guaranteed. The response of Telesat is that, so long as it continues to offer only guaranteed service, it has very little spare capacity at present.

In considering the plight of the many Canadians who get no television service at all, or who are less well served than their compatriots in more heavily populated areas, the first tendency is to assume that everyone in Canada has some kind of an indisputable right to be served as well as anyone else; it follows that if U.S. stations are made available by cable in the south, they must somehow be made available everywhere. This proposition is, at the very least, open to question; while everybody would agree, for example, that it would be a good thing if all parts of Canada were to enjoy wide, modern highways, nobody suggests that there is any obligation to ensure that they do. It is for this reason that, while S.3(e) of the Broadcasting Act declares that "all Canadians are

entitled to broadcasting service in English and French," the statement is qualified by the addition of the words "as public funds become available." In that connection, it seems probable that the 98 per cent coverage achieved by the CBC may represent the economic limit to what can be done with off-air reception, for the cost of reaching the rest of the population would be so high that the provision of sufficient public funds could not be justified. We suggest that this factor be borne in mind in relation to the cost of additional services.

In early February it was announced that the federal Department of Communications has ordered small receiving dishes to be used in experimental direct satellite-to-home broadcasting tests; it has been said that the cost of such dishes might be as low as \$200 within a few years. The likelihood is that, however low the cost, there will be little demand for such dishes in heavily populated areas, for tall buildings are likely to prevent the line-of-sight low-angle "view" of the satellite that is necessary for reception; but a cable company might find it worth-while to install a dish on a suitable site for the purpose of distributing the satellite signals. In the suburbs and in rural areas, the line-of-sight requirement would often present no problem, and there might be a market among individual homes; the dish could, if desired, be trained on a foreign rather than a Canadian satellite, and any prohibition of such a practice would be very difficult, if not impossible, to enforce. In much smaller communities, there may be a few people who would want to meet the cost of buying a dish for themselves, especially if satellite programming were being distributed from a community dish, and a prohibition of reception from foreign satellites on a community dish, whether in a populous or a remote area, could be enforced without too much difficulty.

This whole problem for the future is already a matter of international concern, and there is already a draft treaty under discussion that would prohibit the importation of signals from satellites without the consent of the country by which, or by whose citizens, the signals are owned. The problem already exists in Canada, for there are some technically illegal operators in remote northern areas, where Canadian signals are not yet available, who have receiving dishes trained on U.S. satellites and distribute the signals received to the local community. The government has refrained from interfering with these operations, which may be maintained until Canadian signals become available; the most practical way of achieving this would be the development of a satellite package of Canadian programming.

Consideration was given to the desirability of using satellite transmission to distribute the CTV network to the whole of Canada. The reason why this is not done at present is that the network finds terrestrial long-distance carriage much cheaper for coverage of high-population areas; it was also said by Telesat Canada that the

present volume of CTV traffic is insufficient to justify exclusive use of a whole transponder. The advantage of transmitting CTV programming by satellite would be that it would provide alternative English-language programming for those (possibly half a million) people who can at present receive only the CBC. As regards French-language programming, CBC off-air service already reaches 99 per cent of the population of Quebec and more than 72 per cent of the population of English-speaking Canada. The TVA network covers nearly 94 per cent and Radio-Québec about 78 per cent of the people in Quebec.

Reverting to satellite carriage of CTV programming, it was agreed that there are only two ways of ensuring that this be done: the additional cost could be subsidized by the federal government; or the CTV network could be required to do so. Some members took the view that any subsidy would be more usefully directed to putting together a "public broadcasting service" package, but there was insufficient time to come to any conclusion about who would organize this or how it might be paid for.

All that we have heard and read, however, has convinced us that satellite communications have greater significance for Canadian sovereignty than for that of any other country in the world, and that the domestic system is one of the most potent instruments available for the social and cultural benefit of the many thousands, if not millions, of Canadians who are at present, in relation to those who live in more heavily populated areas, deprived.

Recommendation 18:

Any satellite policy for Canada should support and strengthen Canada's social, economic, and cultural goals. Accordingly, Canadian stations, networks and other program undertakings should be the only sources of radio and television feeds (regardless of the origin of the programs) to be carried on the Canadian satellite service.

Recommendation 19:

The Committee fully supports the continued use of satellites to give Canadians access to the television programming of other countries. It recommends, however, that for such purposes the facilities of Canadian carriers such as Teleglobe Canada and Telesat Canada should be used. Except for the operations of Telesat and Teleglobe, commercial and community satellite receiving earth stations should be licensed for the reception of signals from Canadian satellites only. This recommendation does not apply to the operation of small individual receiving antennas owned by Canadians for their own use.

Recommendation 20:

The Committee's view is that the Canadian satellites could be more fully used in the distribution of Canadian TV to all parts of the country. The federal government should, as a matter of urgency, initiate detailed studies, in consultation with the governments of the provinces, to determine the best means of establishing and financing a satellite transmission

package that would provide alternatives to existing CBC programming (e.g., CTV, the House of Commons debates, educational television, TVA, and other CBC programming) as widely as possible throughout the country.

Recommendation 21:

In light of recommendation 20, Telesat should review its pricing policy to encourage optimum use of its satellites.

10

Informatics

The title of this chapter may be unfamiliar to some readers; *informatics* is a word that is coming into general international use to describe computer-communications of all kinds. Of all the technologies that are developing so rapidly today, that of informatics poses possibly the most dangerous threat to Canadian sovereignty, in both its cultural and commercial aspects.

The Science Council of Canada has addressed this issue emphatically:¹

... technology is developing so quickly that even knowledgeable persons in the industry have trouble keeping abreast of developments.

... new technological ventures (can) either be introduced in an orderly way for the maximum benefit of the various sectors of Canadian society or introduced as new technology embodied in a new wave of imported products and services. Policy makers ... must bear in mind the advantages which could and should accrue to Canadian industry and the possible positive impact on employment and cultural development in Canada. Steps must be taken now to ensure orderly implementation so that opportunities for Canadian industry can be maximized and the new technology introduced in a way acceptable to the Canadian public.

¹ Communications and Computers: Information and Canadian Society. A Position Paper of the Science Council of Canada, Ottawa, October 1978, p. 11.

The whole field of informatics is so well documented today that it is hard to avoid the use of clichés, but one that is worth stressing is this: the rich countries in the world today are those that exploited the industrial revolution in the 19th century; the rich countries of the future will be those that exploit the information revolution to their own best advantage in the 20th and 21st centuries. The industrial revolution was exploited in Canada at first by foreign interests, a fact that has produced our "branch-plant economy"; there is an opportunity today, which will not last long, for Canada to exploit the informatics revolution to its own best advantage, and we believe that policies and actions must begin at once to ensure that the facilities for and content of informatics in Canada not be allowed to develop on a "branch-plant" basis.

It is necessary to speak briefly about the technical aspects of computers as they have developed in the past 25 years. In 1971, it was said:²

The most recent computers are a million times faster than the 1944 prototype, and internal speeds have increased by a factor of 200 between 1955 and 1965. A computer which occupied 1,000 cubic feet in 1955 required only 100 cubic feet in 1965, and the cost of performing one million additions decreased from \$10.00 to two cents in the same decade.

Today, a wafer-thin plastic element measuring only 10 x 15 cm. can store more information than the Toronto telephone directory. The cost of storing one character on a computer disc was one cent in 1970; by 1975 the cost had been reduced to 1/100 of a cent.

Electronic circuits can now be manufactured as a unit known as a microcircuit on the surface of a chip of silicon. To quote from a British document:³

The number of components which can be placed on a 'chip' less than a quarter of an inch square has increased from 10 to 100,000 and is still increasing, while the cost per component has fallen from about five pounds to less than a tenth of a penny.

One form of microcircuit 'chip' can contain all the logic circuits of a small computer which only a few years ago would have cost thousands of pounds. This is the micro-processor. It offers automation on an unprecedented scale, with machines increasingly being able to take over the dull and repetitive jobs in industry and commerce. The micro-processor can do arithmetic; it can be programmed to carry out simple operations unsupervised as in a numerically

2 Instant World, p. 118.

3 Press notice issued from 10 Downing Street, 19 June 1978.

controlled machine-tool and it can manipulate information as in a word processor.

This statement followed the viewing by British ministers of a film produced by the British Broadcasting Corporation (BBC) called *Now the Chips are Down*, which had been shown on national television in March 1978. The thrust of the film is directed mainly to the impact of chip technology on employment, which is outside our terms of reference, and one example mentioned was that the Volvo company in Sweden is replacing a car-production plant that employs 1,100 people with an automated plant affording employment for only 18. The film also shows a totally computer-controlled warehouse (in which only the computer knows where particular boxes are stored), a blind man having a book read aloud to him by a computer, and a quadriplegic controlling his wheel-chair by word of mouth. Nonetheless, the inferences to be drawn from the film with regard to informatics are clearly within our terms of reference, and we refer to them later.

The attention drawn to informatics in *Instant World* impelled the federal government to appoint the Canadian Computer-Communications Task Force, which issued a two-volume report called *Branching Out* in 1972.⁴ The importance of the recommendations in that report was recognized by the federal government about a year later in a Green Paper⁵ prefaced by this statement:

This position paper on computer/communications policy is presented at this time, not as a firm statement of settled government policy, but in order to provide a positive basis for discussion with provincial governments and others who share the federal government's concern with this vital area.

That was about five and a half years ago but no policy has yet been formulated. *Branching Out* contained 39 formal recommendations (and some 'suggestions'); of these, 36 were addressed to the federal government. Action was taken in four cases. Action taken in five cases was later discontinued. In 24 cases, no action has been taken. It was suggested that the Department of Communications be the "lead department" for computer-communications, but instead the government set up an interdepartmental committee to be the focal point; the committee was disbanded early in 1978.

Canada, which had a head-start on other countries in the early 1970s, has now fallen behind, not very far but far enough to require urgent attention. On 6 December 1978, the British prime minister made a policy statement. The measures to be introduced included: an "awareness" campaign, aimed at reaching 50,000 key decision-takers throughout the country within three years; the provision in

4 *Branching Out*: Information Canada, Ottawa, 1972.

5 *Computer/Communications Policy — A Position Statement by the Government of Canada*: Information Canada, Ottawa, 1973.

1979 of 3,000 extra training places for computer programmers and systems analysts; an appropriation of £55 million (\$132 million) for a Microprocessor Application Project; and various measures to encourage the full use of the new technology at a cost, over the next three years, in the order of £100 million (\$240 million). In France, on the same day, the Council of Ministers decided to allocate 2.25 billion francs (\$625 million) to a five-year program aimed at establishing France, during the next ten years, in the first rank among advanced countries capable of producing the equipment and mastering the development of informatics applications, and providing the funds to make that possible. Steps to be taken immediately included: the initiation of a program of informatics education and training in schools, colleges and universities; the creation of an agency to promote development and the diffusion of knowledge on informatics applications; and the provision of funds for the financing of industrial policy on the use of informatics. Total expenditure over a period of twelve years was estimated at 6 billion francs (\$1.83 billion).

In 1977 the Government of Sweden set up a committee to inquire into the vulnerability of the information society (the *Sarbarhetskommitten*), which recently published the first of several projected reports.⁶ The Committee believes that the computerization of society seems inevitable, and that the use of computerized data-systems contributes to the vulnerability of modern highly industrialized societies; that the level of vulnerability is unacceptably high; and that it will become increasingly higher if counter-measures are not taken. According to the report the most important factors governing the degree of vulnerability are the concentration of systems; the dependence on foreign countries; the dependence on the few trained operational staff; and the sensitive nature of certain kinds of information. The Swedish Committee maintains that terrorist activities and other criminal actions, threats, sanctions, and acts of war become possible or are made easier through these vulnerability factors, and that the main cause of the present level of vulnerability in Sweden has been the lack of a national policy and the failure of their government to undertake a comprehensive evaluation of the implications and risks inherent in such a degree of computerization. The close proximity of Canada to the United States and the increasing flow of data across the border make the sovereignty of Canada in this whole field strikingly more vulnerable than is the case in many other countries.

That is part of the background against which some pressing problems must be considered.

6 Most of the material in this paragraph has been taken (with permission) from *Intermedia*, November 1978, the International Institute of Communication, London, England.

Videotex Systems

Videotex systems make it possible to gain access through the telephone networks to information stored in databanks, which is displayed in home or office on a modified television screen. Before describing the Canadian *Telidon* system, we must mention what is happening in the development and marketing of other systems abroad.

The British Post Office has developed a system known as *Prestel*, which is now undergoing extensive trials in three British cities. In France, a similar system using a slightly different technological approach, known as *Antiope*, is about to be market tested. In West Germany, the *Prestel* system is being tested under licence and is known as *Bildschirmtext*, but no final commitment to the system has yet been made. In Japan, the system is called *Captan*. In all these trials, the information available, which is steadily increasing in volume, is being provided by independent "information providers," who decide whether or not the consumer is to pay for the data and the amount, if any, to be charged. In the United States, a feasibility study is in progress and participants include Time Inc., Encyclopaedia Britannica, McGraw-Hill, RCA, and Xerox; the Insac Group, a component of the development arm of the British National Enterprise Board, has exclusive marketing rights to the *Prestel* system in the United States.

The *Telidon* system, developed by the Communications Research Centre in the Canadian federal Department of Communications, is a two-way interactive system which is widely acknowledged to have some features that are a marked improvement on any similar system yet developed, including much greater flexibility and adaptability to different modes of transmission, and a greatly improved visual image. *Telidon* is to be tested in several markets during the course of 1979. Field trials are to be undertaken by Alberta Government Telephones, the Ontario Educational Communications Authority, *Télécâble Vidéotron* (a Montreal cable company), and the Manitoba Telephone System (in connection with the fibre-optics field trial in Elie, Manitoba). On 14 February 1979, Bell Canada announced its *Vista* program, to be tested this year in Ottawa-Hull, Montreal and Toronto. In its opening phase, *Vista* will be using a system developed by Northern Telecom which is less expensive than *Telidon*, but the future use of *Telidon* is under consideration; the first phase, for which several independent organizations are providing elementary databanks, will enable Bell to test the market for the kind of information to be provided. The Manitoba Telephone System is also planning to offer, this summer, a service similar to *Prestel* in order to test the information market but, like Bell Canada, is considering the future introduction of the *Telidon* system.

If Canada is to exploit *Telidon* successfully abroad, where other systems are already being marketed or developed, there can be no question that an effective stimulus will have to be provided

by the federal government. First, the introduction of the system will lead to a growing market for ancillary and terminal equipment in Canada; although some of the estimates of the size of that market are probably optimistic, it seems likely that a relatively small financial stimulus would facilitate the introduction of large-scale production valued at a much higher order of magnitude, and would create many thousands of new jobs for Canadians. Second, efficient marketing arrangements must be organized, with government assistance, in the private sector. Third, steps must be taken urgently to foster the creation of the necessary software, not only that needed for the programming of the technical components of the system but also the creation of the contents of the databanks on which Telidon must depend if there is to be a market for it at all. It should be noted that, whatever may happen to Telidon, some similar systems will certainly be introduced into Canada, importing foreign information and technology; if Canada fails to establish a domestic market for Telidon to form the springboard for exports, there will be a severe loss of jobs in the labour-intensive development of technological and informatics software.

Recommendation 22:

The federal government should vigorously promote the development of plans for the manufacture and marketing of the Telidon information system and ancillary equipment. This should probably take the form of a joint venture involving major participation by the private sector and investment from both the federal and some provincial governments. It might also suitably involve "chosen instruments" in the manufacture and commercial development. In following this course the Department of Communications should assume leadership.

Canadian Databanks

Developments a decade ago in computer-communications gave rise to the concept of an "electronic highway" throughout Canada, giving all Canadians access to each other and to information of all kinds. The development of railways and roads was essential to the industrialization of Canada, and it can be said that the development of the electronic highway will be even more essential to the development of an efficiently computerized Canada effectively under Canadian control. But an electronic highway is of little use if, in the informatics sector, it is no more than a blind alley. As we have said there can be no markets for Telidon unless there are databanks to which it can give access. Conversely, there will be few if any such databanks until it can be shown that Telidon can be manufactured and marketed at prices that will create a substantial demand. Very often an entrepreneur with information to make available will tend to make arrangements to have it added to an existing databank in the United States to which access can be had in Canada. There are some kinds of information for which this would be economically advantageous and beneficial to both countries, such as medical and other scientific and technological infor-

mation which is, in one way or another, available to the public. There are other kinds of information that are intrinsic to Canada, such as national and local history, the whole body of Canadian statutes and case law, biographical information about Canadians, and statistics of all kinds relating to the Canadian economy and to Canadian industry, trade, and commerce. Just as important would be databanks relating to Canadian literature and the arts. Some of the foregoing might well be provided by Canadian governments, especially in cases where there is a demand but no effective commercial market. At the bottom end of the range, there is likely to be a highly localized market for local information, such as classified ads, calendars of events, and so on, which would be continuously accessible and regularly updated. The vigorous approach of the private sectors in Britain and the United States to the provision of information to be accessible on the Prestel and other Videotex systems suggests that they are seizing, or planning to seize, what they see as an opportunity to extend or diversify their activities. Unless Canadian governments and entrepreneurs step quickly into the Canadian vacuum, it will soon be filled with foreign information products, and the opportunity for Canadian entry into the market will have been lost.

Recommendation 23:

The federal government, in concert with the governments of the provinces and the private sector, should stimulate forthwith the development of plans for the creation of Canadian-owned private databanks, as well as others funded by governments. Tax and other incentives should be devised for that purpose.

The Implications of Transborder Data Flow for Canadian Sovereignty

Recent technological advances have eliminated the need to consider national borders in the planning and development of complex informatics systems. In 1977, a sudden rush of enquiries about the policies of the federal government on the transfer of data-processing activities from Canadian subsidiaries of U.S. companies to their headquarters in the United States led to a study in which about 400 companies operating in Canada were approached. The information gathered indicated that the value of computing services imported into Canada would amount to some \$300-350 million in 1978. It also became evident that the rate of emigration to the United States is increasing, and it was estimated that by 1985 the value of imported computer services will have increased to about \$1.5 billion a year. It was further estimated that, as a result, some 23,000 directly related jobs will have been lost to the Canadian economy by that time. There is not at present sufficient data to assess the subsequent heavy losses of indirectly related jobs in financial control, administration, research and development, marketing, and other managerial functions. The ability of Canadians to

control the direction of future economic and social development would be seriously reduced by this exodus of key decision-makers.

Few people in Canada are aware of the implications of what is happening. These are some of the dangers foreseen if protective measures are not urgently devised and implemented. Greater use of foreign, mainly U.S., computing services and growing dependence on them will:

- reduce Canadian control over disruptions in service resulting from technical breakdowns or work stoppages

- reduce Canadian power to ensure protection against other events, such as invasions of personal privacy and computer crime

- lead to greater dependence on foreign computing staff, which would result in turn in lower requirements for Canadian expertise and a smaller human and technological resource base upon which systems specifically geared to Canadian requirements could be developed

- jeopardize the exercise of Canadian jurisdiction over companies operating in Canada which store and process their data abroad

- undermine the telecommunications system in Canada by the use of foreign communications satellites and roof-top receiving antennas for the importation of data into Canada

- entail the risk of publication of information that is confidential in Canada

- give access to Videotex services based on foreign databanks emphasizing foreign values, goods, and services

- facilitate the attempts of the government of the United States to make laws applicable outside U.S. territory.

Those Canadians who are aware of the threat to Canadian sovereignty inherent in the development of informatics are also concerned lest government approaches to dealing with it should have undesirable side-effects on the Canadian economy. Piecemeal approaches by various federal and provincial governments to seemingly unrelated issues may result in conflicting requirements; in short, there is danger of legislative and regulatory "overkill" in this vitally sensitive field. The only solution lies in the cooperative development of a national strategy to protect Canadian interests and derive the greatest benefits from the development and use of informatics technology in Canada.

Recommendation 24:

The government should act immediately to regulate transborder data flows to ensure that we do not lose control of information vital to the maintenance of national sovereignty. Therefore the government should:

- a) Launch a national awareness campaign to explain the social, economic and cultural implications of the new electronic information society. Without a much wider appreciation of the fundamental nature of the changes now taking place it is unlikely that effective mechanisms for considering the issues will be developed, let alone the implementation of appropriate solutions. It should be the responsibility of the Department of Communications to monitor the development in this area.
- b) Require that data processing related to Canadian business operations be performed in Canada except when otherwise authorized.
- c) Consider the feasibility of extending the provision in the Bill to revise the Bank Act related to the prohibition of exporting client data for processing and storage abroad. This might be extended, for example, to the insurance and loan industries.
- d) Provide greater access to risk capital for Canadian corporations in data processing, to prevent foreign take-overs. Use government procurement more effectively in promoting Canadian enterprise in this area.
- e) Promote more effective education and training for high calibre programmers, systems analysts, and others required for developing Canadian systems. The emphasis should be on application development rather than on machine-oriented research and there should be an effort to exchange personnel between government and industry.

11

The Canadian Electronics Manufacturing Industry

The Canadian electronics manufacturing industry comprises 712 firms employing nearly 90,000 people, with total shipments in 1975 amounting to \$2.59 billion. The average size of these firms is very small by world standards, and only 29 have sales in excess of \$25 million a year. The largest, Northern Telecom, employing 19,000 people with annual sales of nearly \$1 billion, is exceeded in size by at least 30 electronic manufacturing firms in other countries. Except for Northern Telecom, which is owned and managed by Canadians, the industry is dominated by foreign interests. Of the 100 largest firms, 72 are foreign-owned. Altogether, there are more than 140 foreign-owned firms, accounting for total sales of about \$1.4 billion. The industry is the largest industrial employer of technical and scientific manpower in Canada and is responsible for about 25 per cent of Canadian industrial spending on research and development (R&D). Expenditure on R&D amounts on average to between four and five per cent of sales, as compared with about one per cent for other Canadian industries. Bell-Northern Research has the largest industrial research establishment in Canada, employing more than 1,400 scientific and technical staff, and spending more than \$80 million a year.

In the past 10 years, the domestic market for electronic products increased by 181 per cent, but shipments by Canadian firms increased by only 149 per cent; the bulk of the market growth was captured by imports, which increased by 283 per cent. The adverse trade balance in the sector as a whole had grown to \$1.267 billion

by 1976, and is believed to be approaching \$2 billion today.¹ The breakdown by subsectors was:

	\$ (million)
Computers and Office Equipment	- 405
Consumer Products ²	- 353
Components ³	- 289
Control and Instrumentation	- 216
Telecommunications	- 6
Other Communications	+ 3

It is widely believed that the manufacture of many kinds of electronic equipment is an impossible task because of foreign competition. But while the manufacture of large computers possibly cannot be retrieved, that of mini-computers is well within Canada's capabilities, and there are other peripheral areas in the computer hardware and software subsectors which are successfully exploited by Canadian firms. There are opportunities for improvement also in the last three subsectors, especially telecommunications.

The Telecommunications subsector is dominated by Northern Telecom, in which Bell Canada has a 65 per cent interest. The company has a reasonably secure market for its products, and is actively pursuing export markets, particularly in the United States where there is a highly competitive market among the telephone companies not associated with the U.S. Bell system. Elsewhere, in Europe and Japan, marketing activities are confined to some specialized products, generally involving manufacturing licensing agreements with local firms so as to circumvent the restrictive and nationalistic procurement policies of the state-owned carriers.

Many of the smaller firms in the Telecommunications subsector assert that the corporate relationship of Northern Telecom with Bell Canada constitutes unfair competition. Nevertheless, the dominant position of Northern Telecom in the relatively small Canadian market tends to discourage the establishment of branch plants by the multinationals, and may thus be acting as an umbrella for a number of small, Canadian-owned, high-technology manufacturers. The Restrictive Trade Practices Commission is at present conducting an enquiry into the telecommunications supply industry in Canada; should the commission recommend that Bell Canada divest itself of effective ownership of Northern Telecom so as to promote more competition in the subsector, there is a strong probability that, because of the peculiar structure of the industry in Canada, most of the competition would be provided by foreign interests. Experience in many other countries has demonstrated the advantages of vertical integration in this field, and the Com-

1 Source for trade balance figures: Department of Industry, Trade and Commerce — A Report by the Sector Task Force on the Canadian Electronics Industry.

2 Television and radio sets, hi-fi equipment, etc.

3 Components for all other sectors.

mittee is of the opinion that the Bell/Northern Telecom complex is of striking advantage for Canada and an essential base for any kind of Canadian technological sovereignty.

The Other Communications subsector is dominated by branch plants of companies based in the United States and Britain. Technology provided by parent companies, together with support from the federal government, has enabled many of these Canadian subsidiaries to demonstrate their technological capabilities and international competitiveness in specialized applications. The remaining Canadian companies are very small in relation to their international competitors, and most of them lack the corporate size and strength to develop a total-systems capability or to maintain an adequate level of R&D and applications-engineering. Nevertheless, some of them have had remarkable success in export markets as a result of innovativeness; in this high-technology field, the life of a new product may be as short as three or four years, and a small company that gets a step ahead in a particular area may well be in an internationally dominant position from time to time.

In the Space Manufacturing sector, which has close ties with the Electronics sector, a "chosen instrument" approach has been made on behalf of Spar Aerospace, a public company that is 97 per cent Canadian-owned. Although relatively small by world standards (with sales of \$70 million in 1977), Spar, by a series of mergers and support from the federal government, has emerged as a manufacturer of subsystems for communications satellites, and of earth-stations and transmission equipment. It has been decided that Spar, with its experience as a subcontractor in earlier Canadian space programs, is to be the prime contractor for the next series of satellites being purchased by Telesat Canada. Although the space sector does not fall strictly within the title of this chapter, it is worth noting that, under cooperative arrangements with the United States, a four-company Canadian team led by Spar has been working since 1971 on two particular aspects of the space shuttle program: at the end of 1975, Spar was awarded two contracts, presently foreseen to total \$90 million at completion, to design the remote-manipulator systems for the shuttle, and to build a remote-manipulator simulation facility.

The Control and Instrumentation subsector is served by a few subsidiaries of multinationals and a large number of much smaller Canadian-owned firms that have carved out for themselves a specialized market for a specialized product for use in automatic process-control in manufacturing and for pollution control in all industries. Potential for growth is particularly dependent on capital spending for industrial expansion, which is in turn dependent on the overall state of the economy. The Components subsector is also dominated by foreign-owned firms, and is devoted almost exclusively to the manufacture of simple components. Imports tend to be much more sophisticated, and supply more than half the domestic market.

The structure of the Canadian electronics manufacturing industry closely resembles that in the United States, reflecting its branch-plant nature. The U.S. market is so large that companies can specialize and still remain multi-billion-dollar undertakings, but in Canada specialization entails fragmentation, excessive competition, and small-scale production. It is difficult to propose a strategy that would reduce the number of firms because of their contribution to employment, and because of the benefits to Canada of the technology imported from abroad. These benefits are hard to quantify but are believed to be significantly in the public interest. Meanwhile, about 100 Canadian firms specializing in high technology have sales ranging from \$1 million to \$50 million a year. Most of them fall in the lower half of that range, but assisted by funding programs and tax measures, have developed strong technical capabilities in specialized areas. The weakness is that most of them are so small that they lack the financial resources and in some cases the managerial skills that would enable them to engage in systems development for larger projects.

A decline of electronics manufacturing in Canada is naturally a cause for concern in the industry, which has advocated policies aimed at improving the business climate, such as tax incentives, tariff protection, support for R&D, and government procurement policies. Perhaps not surprisingly, the industry has not identified fragmentation as the root cause of its decline. Most executives in this subsector will admit privately that there are too many competing firms, but understandably, no one wants to be the first to retire. It would clearly be advantageous for Canada if the existing structure could be condensed into a small number of larger firms able to compete internationally.

A new perspective has appeared in this generally depressing picture. During the past 20 years, the formidable technological advances in electronics have been exploited largely as a means of improving existing services. But the technology has advanced to the point where it is now technically and economically possible to consider the introduction of entirely new communication-related services (as described in Chapter 10). These new services have one common characteristic: for their economic exploitation, they are likely to develop as integrated systems that will overlap the existing telecommunications, broadcasting, and cable networks. The strength of the telecommunications subsector is founded on a very close cooperation between research and development, manufacture, and carriage; the Canadian telephone system has been designed and built by Canadians, and system integration has been so tightly controlled that foreign competition has been minimal; and the system is, for the most part, fully responsive to Canadian needs. If these new services can be commercially developed on a systems basis, it seems probable that the federal government, through its policies and regulatory and incentive measures, will be able to ensure that the new systems are designed and manufactured by Canadians in Canada.

The other principal new factor in the electronic manufacturing scene is the rapid emergence of fibre optics as a means of telecommunications delivery. There are still too many uncertainties about fibre optics for it to be designated now as the means of total plant integration in the future. But this new technology should not be neglected, for there is a widely held opinion that it is certain, eventually, to become commercially exploitable; the only uncertainty is how long that will take. We are not qualified to express any opinion on the technological probability but we believe that it is favourable enough to justify a determined effort to be in the forefront of design and development of the ancillary and terminal equipment that will be needed should fibre optics succeed.

We concluded, from the evidence presented, that this whole field of developing technology has opened up a field in which Canada might, if it so wishes, escape from the branch-plant structure of so much of its industry. The question to which we addressed ourselves was this: would it be beneficial to Canada to establish a form of technological sovereignty in a particular sector and, if so, what would be the best means to attain that objective?

The United States is perhaps the only country in the western world that can afford to cling or pay lip-service to strict concepts of anti-trust legislation and totally free competition; Canada, some of us believe, cannot, and in any case the practice in the United States largely strays far from the precept. The programs of the United States Defence Department provide, in effect, a vast stimulus for domestic industry; the capital assets of the department have been said to exceed those of the 100 largest corporations in the country. There are now 11 states that have enacted "buy American" laws, and another 17 have adopted regulations that have similar consequences for foreign manufacturers trying to sell in the United States.⁴ It is reported that Japan's insistence on buying Japanese is holding up the current GATT negotiations. In Europe, where telecommunication services are provided in every country by the state-owned PTT (post, telephone, telegraph), no national government hesitates to erect non-tariff barriers to support or protect its domestic industry. The government of the Netherlands uses the Philips corporation as a chosen instrument. In Britain, the Post Office allocates its business to selected manufacturers by means of bulk purchasing arrangements and its policies have induced a restructuring of the industry, leaving only three major suppliers; since 1976, the National Enterprise Development Board has been engaged in discussions aimed at reducing the number of firms still further; the board has recommended that there should be only one, but the Post Office favours two. In France, in 1976, the PTT decided to embark on a \$7 billion expansion program and called for proposals from four manufacturers; Northern Telecom

⁴ Source: Speech by the Canadian Ambassador to the United States reported in the *Globe & Mail*, 31 January 1979.

and Nippon Electric were eliminated because they do not manufacture in France; the other two, Ericsson and ITT, were "persuaded" into a consortium with Thomson CSF, the French-owned electronics giant, which thus acquired a solid base of modern telecommunications technology for a bargain price of \$200 million. Many other examples could be cited.

The Committee is firm in its belief that Canada should make every effort to take advantage of the new manufacturing opportunities that are being opened up. We accordingly believe that the federal government should immediately take steps to foster such a development, in the realization that any decision, one way or the other, is urgently required to dispel the uncertainties that at present make it difficult if not impossible for the private sector to make decisions on long-term policy that would permit rational planning.

Several methods of establishing a degree of Canadian technological sovereignty have been considered. There seems to be no good reason why we should not follow some of the practices used by almost every other country in the world. One would be a reinforcement of the "buy Canadian" policy now being pursued by the federal government. There are strong arguments, supported by the success of Spar, for the use of selected Canadian companies, supported by R&D and production contracts, as chosen instruments in particular high-technology areas. There could be more support for R&D generally, either in government laboratories or in industry, which would not incur retaliation by the United States; collaboration between the public and private sectors in R&D should be encouraged, as has been the practice in some fields. Resources should be made available for the marketing and exploitation of successful innovations introduced by Canadian firms. Tax incentives and related ways of stimulating industrial innovation should be made more freely available, always having a cautious regard for the legal and non-tariff barriers erected by other countries. Measures should be developed to establish standards throughout the country to facilitate the use and exploitation of Canadian technology. The multinationals and foreign-owned companies should be encouraged to do more R&D in Canada. It should be regarded as a first priority to establish a climate of greater certainty by defining clear objectives for the best use of telecommunications facilities in all Canada. There was reference in Chapter 10 to the Telidon system developed by the Communications Research Centre, which is now undergoing trials; there can be no question that government funding will be necessary to move this remarkable system into a commercial framework; in doing so, a market will be developed into which other countries will plunge; this development should be anticipated by the formulation of tariff or non-tariff barriers.

When the establishment of this Committee was first announced, it was widely thought that our most important preoccupation would be related to the development of broadcasting and new services. We are firmly convinced that those aspects of Cana-

dian sovereignty are of very great importance, but our enquiries have led us to believe that the problems of the electronics manufacturing industry also call for high priority attention by governments in the interest of the prosperity of Canadians at large.

Recommendation 25:

We therefore recommend that the government:

- a) Move quickly and aggressively, in consultation with private industry, to exploit Canada's technological leadership in such areas as Telidon, fibre optics and communication satellites.
- b) While recognizing the significant contribution that will continue to be made by small companies in high-technology industries, actively foster the formation of large Canadian-owned firms through mergers and consolidations (as in the case of Spar) in order to achieve production volumes necessary to compete in both domestic and export markets.
- c) Revise the combines law to reflect the need to rationalize the industry and to develop large companies.
- d) Encourage research and development through very substantially increased tax rebates on all research and development expenditures.
- e) Establish an environment of greater certainty for manufacturers by developing design standards that will facilitate adoption of Canadian technology.
- f) Recognize the fundamental importance of a secure domestic market base to the development of high-technology industries.
- g) Support, on a selective basis, qualified Canadian-owned firms through contracts for both research and development and production.
- h) Ensure that foreign technology is imported in a manner that will optimize its exploitation in Canada and abroad by Canadian firms.
- i) Be prepared to provide low-cost financing of loans to foreign governments, where necessary to facilitate export sales.
- j) Provide tax incentives to encourage the flow of venture capital into high-risk electronics undertakings.
- k) Foster the development of an indigenous mini-computer industry.
- l) Continue the highly desirable program of technological research at the Communications Research Centre and encourage the diffusion of the results of this research to private industry.

Recommendation 26:

We note that in this area there is a serious lack of co-ordination of government policies and programs. We direct the government's attention, as a matter of urgency, to the reorganization of inter-departmental leadership and the making of decisions in regard to telecommunications.

12

In Conclusion

Our terms of reference required us to produce specific recommendations on a strategy to restructure the Canadian telecommunications system to contribute more effectively to the safeguarding of the sovereignty of Canada.

Questions of jurisdiction were explicitly excluded from those terms of reference, but we have found during the course of our work, as we expected, that jurisdiction is a factor that cannot be ignored in attempting to formulate solutions to many of the questions we have been asked to consider.

We see communications as one of the fundamental elements of sovereignty, and we are speaking of the sovereignty of the people of a country. Canadians may have differing needs and priorities in different parts of the country, and it is the responsibility of the governments of the provinces to ensure that these are taken sufficiently into account; but it is the responsibility of the Government of Canada to provide leadership and long-term planning and to represent and defend the sovereignty of the Canadian people as a whole, whatever their race, and whatever language they may use in their daily life and business.

There are gaps in the broad strategy that could be based on our recommendations. The areas we have covered in some depth are the status of the cable industry, the rationalization of the carrier industry, the future of the CBC and the private broadcasters, the impact on Canadian social and cultural life of the foreign programming of stations in the United States, a formula for the introduction of pay-television two or three years hence on a national basis, some

aspects of policy for the best use of communications satellites, the threat to Canadian sovereignty posed by informatics, and the structure of the electronics manufacturing industry.

We have found that in almost all those areas there is a climate of uncertainty which inhibits planning and investment by both the public and private sectors, and we believe that the Minister of Communications had more than ample justification for her statement, in the preamble to our terms of reference, that "The Canadian communications system is in the midst of a crisis more profound than any that has affected it since the 1920s." Many of us were only vaguely aware of the true nature of that crisis when we accepted the Minister's invitations to sit on this Committee, but what we have learnt is not only that there is a crisis but also that it must be tackled with the least possible delay.

We conclude our work, therefore, not with another recommendation but with an exhortation: with all the force at our command, we urge the Government of Canada to take immediate action to alert the people of Canada to the perilous position of their collective sovereignty that has resulted from the new technologies of telecommunications and informatics; and we urge the Government of Canada and the governments of the provinces to take immediate action to establish a rational structure for telecommunications in Canada as a defence against the further loss of sovereignty in all its economic, social, cultural, and political aspects.

Specific Recommendations

Chapter 4 Changing the Status of the Cable Industry

Recommendation 1

- a) Given that cable companies have been granted territorial service monopolies, they should be regulated on a rate-of-return basis.
- b) To this end, action should be taken to amend Bill C-16 for a new Telecommunications Act so as to allow the CRTC to regulate cable companies both as broadcasting receiving undertakings and as telecommunications carriers.
- c) For the purposes of implementation of a), the first cable companies to be regulated as telecommunications carriers should be those offering non-broadcast services which they are not now authorized to offer, such as fire and burglar alarm services, Telidon, etc.
- d) Cable companies should be allowed to provide non-broadcast services other than telecommunications carriage. When they do so, they should be required to incorporate a separate company for that

purpose; if the separate company has the same ownership as the cable company, it should have a separate management and maintain a relationship sufficiently distant to ensure that fair access can be afforded to all competitors who wish to use the cable company's facilities. Under the amended legislation, the cable companies would, in their capacity as telecommunications carriers, be required to offer public access to their services and facilities, without discrimination and at just and reasonable rates.

e) The CRTC should, in preparation for the eventual regulation of cable companies as carriers, institute effective cost-separation procedures by the cable companies, so that the cost of distributing broadcast signals received off-air, as directed by the CRTC, can be identified as one of the costs to be included in the rate base.

Chapter 5

The Carriage Industry

Recommendation 2

The pace and extent of plant integration for local delivery of telecommunications services should be determined by future technological, economic and social considerations.

Recommendation 3

The federal government should consider the introduction of amendments to Bill C-27 (for the creation of a Post Office corporation) with a view to clarifying the role of the corporation in the telecommunications structure as a whole, which must continue to include the private telecommunications carriers.

Recommendation 4

In our view the high level of long-distance telephone rates, an outgrowth of the uncoordinated regulatory process in the industry, is a barrier to national communication and understanding. We recommend that the governments and agencies involved cooperate to create a mechanism which will review long distance rates and determine that they reflect national as well as regional interests.

Chapter 6 Broadcasting

Recommendation 5

The broadcasting services provided by the CBC are the main national instruments for the preservation of Canadian social and cultural sovereignty and should be recognized as such. The CBC should be afforded whatever means may be required to reinforce its function in that regard.

Recommendation 6

A task force should be appointed by the Governor-in-Council under the Inquiries Act to report on and make recommendations with regard to the management, programming, and funding policies of the Canadian Broadcasting Corporation, with particular but not exclusive reference to:

- quality and diversity of programming

- “make-or-buy” policy for program production

- the reflection to each other of the two principal linguistic communities in Canada, and the promotion of exchanges between the English-language and French-language networks

- the proportion of the operational budget being devoted to program production

- the decreasing audience-share of the CBC network, in particular the English-language television network

- responsiveness to the public

- the financial resources necessary to carry out the CBC's responsibilities under the Broadcasting Act

- additional channels (off-air or on cable) to be used for CBC programming.

Recommendation 7

The CRTC should be authorized to issue broadcasting licences to independent corporations established by provincial governments to operate broadcasting facilities and broadcast programs of a general character, subject to the provisions of the Broadcasting Act and the Radio Act.

Recommendation 8

Bill C-16 should be amended so as to require private broadcasters to provide, *inter alia*, for a continuing expression of Canadian identity and to contribute actively to the flow and exchange of

cultural and regional information and entertainment, as is already the case with the CBC.

Chapter 7 Canadian and Foreign Programming

Recommendation 9

The CRTC should introduce a points system for measuring Canadian content combining qualitative, quantitative, and prime-time aspects, without relinquishing the present concept of a minimum quantity, but with strong emphasis on quality.

Recommendation 10

The CRTC should establish classes of broadcasting stations as a base for determining the percentage of revenue, in each class, that should be devoted to program production.

Recommendation 11

a) Some of the revenues from cable subscription fees should be paid into a fund to be used for the production in Canada of programs to be viewed on television. All subscribers should contribute to this fund; it should be noted, however, that rate-of-return regulation for cable will mean in the case of many systems that a levy can be made for the purpose of the programming fund without increasing the present subscription fees. In some cases, the amount of the levy may have to be added to the subscription fee.

b) The Canadian Film Development Corporation (CFDC) or a new agency created for the purpose should be empowered to receive and administer the proceeds of the levies recommended in a) for the purpose of promoting Canadian production of programs to be viewed on television (including films), following the procedures now authorized and in use for the promotion of film production by the CFDC.

Recommendation 12

The federal and provincial governments should take action, as a matter of urgency, to introduce incentives to promote corporate

sponsorship of Canadian television programming and to assist the production, programming, and marketing of Canadian programs and films to be shown on television. Governments should consider the possibility of tax rebates for advertising on Canadian programs.

Recommendation 13

The problem of transplants—American stations carried in their entirety on Canadian cable systems—presents a perplexing mixture of conflicting needs, desires and rights.

1 The existence of the transplant system is inherently unfair to Canadian private stations and the CBC. The showing of U.S. programs on the transplants detracts from the commercial value of those programs to Canadian stations, even though the Canadian stations have bought Canadian rights to them. The Committee has concern that a time may arrive when, most of the country having been reached by cable, there will be little or no commercial value to Canadian stations in using U.S. programs.

2 In addition the transplants on cable spread foreign advertising far beyond the border areas and make it unnecessary in some cases for international corporations to buy advertising in Canada; they are covered by the “overflow” of their American parent companies’ advertising.

3 The majority of the Committee proposes that when a Canadian broadcaster buys exclusive rights to a program for a given area, cable companies in that area be required to respect these rights and the CRTC to enforce them. This action should not be taken before public discussion and debate, including CRTC hearings.¹

Two members of the Committee (Clyne, Fulford) firmly hold the view that this would be unacceptable to Canadian viewers who regard the watching of transplants as an incremental right, given the technological capability of cable.

4 It has been proposed to the Committee that Canadian cable simply delete all commercials from U.S. transplants. The Committee rejected this suggestion on the grounds that it would amount to unethical treatment of the U.S. stations.

5 The Committee holds the view that eventually this issue may be resolved in terms of property ownership under a revised copy-right law.

Recommendation 14

The federal government, which has traditionally exercised jurisdiction in the field of copyright, should urgently undertake a

1 We note that in the United States the ownership of programs within a given area is protected by law and practice and that cable systems routinely black out programs from distant stations in order to protect the rights of local stations. Were Canadian cable companies to follow a similar rule, it would not be at variance with U.S. practice.

full revision of the copyright law, having regard to the extensive report made by Keyes and Brunet at the request of the Department of Consumer and Corporate Affairs and published in 1977.

Recommendation 15

The CRTC, in authorizing the carriage of television stations by cable, should continue to give precedence to Canadian stations, and should not increase beyond four the number of U.S. stations that may be distributed.

Mr. Clyne, Mr. Fournier and Mr. Beigie have reservations about this recommendation, and would allow the CRTC to have discretion as to the number of U.S. stations that may be distributed.

Recommendation 16

The federal government should renew the discussions with the United States with a view to resolving the border television dispute at an early date.

Chapter 8

Pay-Television

Recommendation 17

a) Pay-per-program television should be recognized as more appropriate for Canada than pay-per-channel. Pay-television should be introduced as soon as the technology for pay-per-program is developed.

b) Pay-television should be provided by licensed Canadian-owned program undertakings.

c) Attention should be given to the elaboration of Canadian-content rules appropriate for pay-TV.

d) There should be a levy on profits from pay-TV, to be used for Canadian programming, with the amount to be determined by the CRTC.

Chapter 9 Satellite Communications

Recommendation 18

Any satellite policy for Canada should support and strengthen Canada's social, economic, and cultural goals. Accordingly, Canadian stations, networks and other program undertakings should be the only sources of radio and television feeds (regardless of the origin of the programs) to be carried on the Canadian satellite service.

Recommendation 19

The Committee fully supports the continued use of satellites to give Canadians access to the television programming of other countries. It recommends, however, that for such purposes the facilities of Canadian carriers such as Teleglobe Canada and Telesat Canada should be used. Except for the operations of Telesat and Teleglobe, commercial and community satellite receiving earth stations should be licensed for the reception of signals from Canadian satellites only. This recommendation does not apply to the operation of small individual receiving antennas owned by Canadians for their own use.

Recommendation 20

The Committee's view is that the Canadian satellites could be more fully used in the distribution of Canadian TV to all parts of the country. The federal government should, as a matter of urgency, initiate detailed studies, in consultation with the governments of the provinces, to determine the best means of establishing and financing a satellite transmission package that would provide alternatives to existing CBC programming (e.g., CTV, the House of Commons debates, educational television, TVA, and other CBC programming) as widely as possible throughout the country.

Recommendation 21

In light of Recommendation 20, Telesat should review its pricing policy to encourage optimum use of its satellites.

Chapter 10

Informatics

Recommendation 22

The federal government should vigorously promote the development of plans for the manufacture and marketing of the Telidon information system and ancillary equipment. This should probably take the form of a joint venture involving major participation by the private sector and investment from both the federal and some provincial governments. It might also suitably involve "chosen instruments" in the manufacture and the commercial development. In following this course the Department of Communications should assume leadership.

Recommendation 23

The federal government, in concert with the governments of the provinces and the private sector, should stimulate forthwith the development of plans for the creation of Canadian-owned private databanks, as well as others funded by governments. Tax and other incentives should be devised for that purpose.

Recommendation 24

The government should act immediately to regulate trans-border data flows to ensure that we do not lose control of information vital to the maintenance of national sovereignty. Therefore the government should:

- a) Launch a national awareness campaign to explain the social, economic and cultural implications of the new electronic information society. Without a much wider appreciation of the fundamental nature of the changes now taking place it is unlikely that effective mechanisms for considering the issues will be developed, let alone the implementation of appropriate solutions. It should be the responsibility of the Department of Communications to monitor the developments in this area.
- b) Require that data processing related to Canadian business operations be performed in Canada except when otherwise authorized.
- c) Consider the feasibility of extending the provision in the Bill to revise the Bank Act related to the prohibition of exporting client data for processing and storage abroad. This might be extended, for example, to the insurance and loans industries.
- d) Provide greater access to risk capital for Canadian corporations in data processing, to prevent foreign take-overs. Use government procurement more effectively in promoting Canadian enterprises in this area.

- e) Promote more effective education and training for high calibre programmers, systems analysts, and others required for developing Canadian systems. The emphasis should be on application development rather than on machine-oriented research and there should be an effort to exchange personnel between government and industry.

Chapter 11

The Electronics Manufacturing Industry

Recommendation 25

We recommend that the government:

- a) Move quickly and aggressively, in consultation with private industry, to exploit Canada's technological leadership in such areas as Telidon, fibre optics and communication satellites.
- b) While recognizing the significant contribution that will continue to be made by small companies in high-technology industries, actively foster the formation of large Canadian-owned firms through mergers and consolidations (as in the case of Spar) in order to achieve production volumes necessary to compete in both domestic and export markets.
- c) Revise the combines law to reflect the need to rationalize the industry and to develop large companies.
- d) Encourage research and development through very substantially increased tax rebates on all research and development expenditures.
- e) Establish an environment of greater certainty for manufacturers by developing design standards that will facilitate adoption of Canadian technology.
- f) Recognize the fundamental importance of a secure domestic market base to the development of high-technology industries.
- g) Support, on a selective basis, qualified Canadian-owned firms through contracts for both research and development and production.

- h) Ensure that foreign technology is imported in a manner that will optimize its exploitation in Canada and abroad by Canadian firms.
- i) Be prepared to provide low-cost financing of loans to foreign governments, where necessary to facilitate export sales.
- j) Provide tax incentives to encourage the flow of venture capital into high-risk electronics undertakings.
- k) Foster the development of an indigenous mini-computer industry.
- l) Continue the highly desirable program of technological research at the Communications Research Centre and encourage the diffusion of the results of this research to private industry.

Recommendation 26

We note that in this area there is a serious lack of coordination of government policies and programs. We direct the government's attention, as a matter of urgency, to the reorganization of inter-departmental leadership and the making of decisions in regard to telecommunications.

Annex A

Expanded Terms of Reference

Introduction

The Canadian communications system is in the midst of a crisis more profound than any that has affected it since the 1920's. The Prime Minister, the Leader of the Opposition, the Secretary of State, the Federal and Provincial Ministers of Communications, the President of the CBC, the past Chairman of the CRTC and other knowledgeable participants in the field have all expressed their reservations publicly about the extent to which the system is falling short of expectations and opportunities. Many have drawn special attention to the need to safeguard Canada's cultural sovereignty, as Graham Spry, Sir John Aird, Vincent Massey, Robert Fowler and Judy LaMarsh had done before them. The recent hearings before the CRTC on the CBC licence renewals, the spectacle of U.S. broadcasters seeking redress against Canadian legislation and tax laws, and the recent applications by the cable companies to deliver non-programming services (which are opposed by the telephone companies) provided other opportunities for the public and the media to add their voices to the chorus of concern.

At the same time, developments in the areas of fibre optics, satellites, interactive television and computer technology threaten not only to exacerbate the existing problems, but also to bring new ones and new opportunities in their wake. Among other things, these new technologies could: radically increase the amount of American television programming entering the country; further aggravate the balance of payments problem in electronic products; increase the difficulties being experienced by the Post Office, schools and universities, publishing industries and the clients they are meant to serve; and compromise the country's capacity to control future fundamental economic, political, social and cultural directions. On the other hand, these technologies could — if imaginatively and quickly applied — permit a significant repatriation of the electronics industry, provide a new base for the development of the high-technology area, stimulate the growth of a whole host of new programming and information-based services, and generate more private support for a revitalized cultural sector. It is apparent, therefore, that the new technologies constitute both threats and opportunities, which could be used either to further erode Canadian sovereignty or to strengthen it considerably. The current debate by those involved in the Delta project, sponsored by the Universities of Montreal and McGill to deal with the future of the telecommunications system, and the Report of the Communications Research Advisory Board, have helped focus attention on some key issues.

Traditionally, problems of this scope and complexity have been made the subject of extensive investigations, carried out over long periods of time by large supposedly representative and diverse groups. In this case, however, given the pressing nature of the difficulties, a major inquiry would take so long that the history of *ad hoc* decision-making characteristic of the past would lead to solutions too late to be effectively applied. Besides, both the problems and the range of alternative solutions are sufficiently well documented that it should not be necessary to engage in elaborate fact-finding or detailed development of different policy options. For these reasons, and because of the urgency and far-reaching implications of the issue, the Minister of Communications has invited a small group of wise and experienced Canadians to examine the solutions that are currently under discussion and decide in the near future which of the alternatives are most likely to help solve the current problems.

Members of the Consultative Committee will not be representatives of regions, groups, industries, etc. but will be appointed and serve in their own right as individuals. Should members wish to employ technical advisers or test their tentative conclusions on various informed Canadians, the resources of the Department of Communications will be available to make such arrangements as are necessary.

Because the subject matter is not only economic and technical but deals ultimately with the stuff of the spirit and imagination, it

has been deemed appropriate to establish the Consultative Committee as an "arms-length" committee, entirely free of any formal relationship to the machinery of government but fully serviced by it. The reason for this is to ensure that there is no confusion in the public mind about the independence of the Committee members, while — at the same time — providing them with access to all available information, analyses and studies. This question of the independence and non-partisan character of the committee is particularly important, since the value of its final report will derive in part from the public examination and debate it will stimulate.

Purpose of the Committee

The Committee will be asked to produce specific recommendations on a strategy to restructure the Canadian telecommunications system to contribute more effectively to the safeguarding of Canada's sovereignty.

Terms of Reference

The Committee will be asked to make recommendations on the future of the Canadian telecommunications system in relation to new technologies and the need for Canadian software and hardware resources to meet foreign competition, with particular reference to the role of broadcasting in contributing to the preservation of the sovereignty of Canada, including:

- a) the use of communications satellites to the best advantage of Canada;
- b) the importation of foreign programming;
- c) the status of the cable companies in relation to broadcasting and to the common carriers in the provision of new services;
- d) the framework and timing for the introduction of pay-television nationally.

The Committee is expected to approach its work, bearing in mind the current mixture of Canadian attitudes toward government intervention, regulation and public expenditure. And, while recognizing the interests of both federal and provincial administrations in the subject matter, the Committee will not deal with constitutional matters of jurisdiction, since the First Ministers have agreed to examine this particular issue.

In order to meet the specific objectives as expeditiously as possible, it is proposed that the Committee should complete its work by the first week of February, 1979, so that its final report can be made public in both official languages by mid or late February, 1979. Every effort will be made to continue to keep the federal and provincial governments and the various interest groups abreast of the progress of the Committee's deliberations and to accommodate the views of as wide a constituency as possible without holding formal hearings.

Annex B

Delegations Received

The following is a list of delegations received by the Committee:

Association of Canadian Television and Radio Artists (ACTRA)

Mr. Jack Gray, President

Mr. Paul Siren, General Secretary

Bell Canada

Mr. J. H. Farrell, Vice President, Regulatory Matters

Mr. Ernie Saunders, Vice President, Law and Corporate Matters

Mr. Jack Harvey, Assistant Vice President,
Technology Development

Canadian Advanced Technologies Association (CATA)

Mr. D. Cunningham, Chairman, CATA; President,
Gandalf Data Communications Limited

Mr. T. Ortt, President, Systems Approach Limited

Mr. J. Boulakia, SED Limited

Mr. L. Barton, Director, Program Management,
Mitel Corporation

Canadian Association of Broadcasters (CAB)

Mr. G. G. E. Steele, President, CAB

Mr. Ed Provost, Chairman, CAB; Corporation CIVITAS

Mr. Don Smith, Vice Chairman, Television, CAB
CHAN-TV, Vancouver

Mr. Don Lawrie, Vice Chairman, Radio, CAB;
Kawartha-Frontenac Broadcasting Company Ltd.

Other CAB members:

Mr. Robin Quinn

Mr. Gerry Acton

Mr. A. G. Day

Station representatives:

Mr. Alain Gourd, CHOT-TV, Hull

Mr. John Ansell, CJVI, Victoria

Mr. Ron Mitchell, CKY, Winnipeg

Canadian Business Equipment Manufacturers Association (CBEMA)

Mr. P. Brophey, President, CBEMA;

Vice President, Corporate Affairs, Xerox of Canada

Mr. G. Murray, Board of Directors, CBEMA;

General Counsel and Secretary, IBM Canada Limited

Canadian Broadcasting Corporation (CBC)

Mr. A. W. Johnson, President

Mr. Pierre DesRoches, Executive Vice President

Mr. P. Herrndorf, Vice President, Planning

Canadian Cable Television Association (CCTA)

Mr. M. Hind-Smith, President

Mr. Ted Rogers, Rogers Telecommunications Limited

Mr. G. Conway, CUC Limited

Mr. J. Meekison, Cablecasting Limited

Canadian Labour Congress

Mr. J. McNevin, Director, Canadian Brotherhood of Railway,
Transport and General Workers

Mr. Norman Hobbs, General Chairman, Telecommunications
Division, Canadian Brotherhood of Railway,
Transport and General Workers

Mr. Boris Mather, President, Canadian Brotherhood of Railway,
Transport and General Workers

Mr. Seppo Nousiainen, Canadian Labour Congress

Ms. Sharleen Treleaven, Research Assistant

Canadian Manufacturers Association (CMA)

Mr. Gordon Lloyd, Telecommunications Committee Secretary

Mr. Art Sherwin, Ontario Hydro

Mr. Pete Forstner, Westinghouse Canada Limited

Mr. Jim Tapsell, IBM Canada Limited

Canadian National/Canadian Pacific Telecommunications (CNCP)

Dr. R. A. Bandeen, President and Chief Executive Officer,
Canadian National Railways

Mr. F. S. Burbridge, President, Canadian Pacific Limited

Mr. R. C. Franklin, Vice President, Canadian National
Telecommunications

Mr. J. G. Sutherland, Vice President, Telecommunications,
Canadian Pacific Limited

- Mr. J. S. Schmidt, Director, Regulatory & Governmental Matters,
Canadian Pacific Telecommunications
Canadian Radio-television and Telecommunications Commission
(CRTC)
Dr. Pierre Camu, Chairman
Mr. Jean Fortier, Vice President
Mr. Charles Dalfen, Vice President
Canadian Telecommunication Carriers Association (CTCA)
Mr. D. G. Cruickshank, President
Mr. S. G. Anderson, Vice Chairman, CTCA; Vice Chairman and
Assistant General Manager, Manitoba Telephone System
Mr. André Lapointe, Executive Vice President,
Corporate Affairs, Teleglobe Canada
Consumers' Association of Canada (CAC)
Professor H. Janisch, Chairman, Regulated Industries
Policy Board, CAC; Faculty of Law, University of Toronto
Mr. H. Intven, General Counsel, CAC
Mr. D. Dufour, Staff Lawyer, CAC
Economic Council of Canada
Dr. Sylvia Ostry, O.C., Chairman
Dr. W. T. Stanbury, Director, Regulation Reference
Dr. D. P. DeMello, Director, Technological Change,
Productivity and Growth Group
Federal Department of Communications
Mr. Bernard Ostry, Deputy Minister
Dr. J. H. Chapman, Assistant Deputy Minister, Space Program
Mr. D. F. Parkhill, Assistant Deputy Minister, Research
Mr. K. T. Hepburn, Assistant Deputy Minister,
Spectrum Management and Government Telecommunications
Mr. R. Stursberg, Executive Assistant
Mr. Vince Hill, Acting Director-General,
National Telecommunications
Mr. P. D. Brodhead, Director-General, Broadcasting and
Social Policy Branch
Dr. A. R. Kaye, Director, Task Force, New Home and
Business Services
Mr. G. Henter, Director, Financial and Regulatory Affairs
Northern Telecom Limited
Mr. Robert Scrivener, Chairman and Chief Executive Officer
Mr. Walter F. Light, President
Mr. Brian O'Regan, Assistant Vice President, Public Affairs
Premier Cablevision
Mr. S. W. Welsh, Chairman of the Board
Mr. B. R. Adams, Vice President and General Counsel
Mr. H. K. Davis, Vice President Engineering
Mr. G. Keeble, Vice President, Programming
Mr. J. S. McDonald, President, Western Cablevision

Science Council of Canada

Mr. John Shepherd, Vice Chairman

Dr. Arthur Cordell, Project Officer

Mr. Georges Miedzinsky, Secretary of Council

Secretary of State of Canada

Mr. Pierre Juneau, Under-Secretary of State

Trans-Canada Telephone System (TCTS)

Mr. Terry F. Heenan, President

Mr. G. M. Smith, Vice President, Revenue Requirements,
British Columbia Telephones Limited

Mr. P. E. Vivian, Legal Counsel and Government
Relations Manager, TCTS

L'Union des Artistes

Mr. G. Blais, General Director

United States Border Television Stations

Mr. Richard F. Wolfson, Executive Vice President and
General Counsel, Wometco Enterprises, Inc.;

Owner KVOs Television Corp, Licensee KVOs-TV,
Bellingham, Washington, D.C.

Mr. Leslie G. Arries, Jr., President, Buffalo
Broadcasting Company Inc.;

Licensee WIVB-TV, Buffalo, N.Y.

Mr. Robert Taft, Jr., Attorney, Washington, D.C.;

Licensee WGR-TV, Buffalo, N.Y.

Mr. Charles Goodell, Attorney, Capital Cities
Communications Inc., Buffalo, N.Y.;

Licensee WKBW-TV, Buffalo, N.Y.

Mr. David Mintz, Vice President and General Manager,
KVOs-TV, Bellingham, Washington.

Mr. John Fiorini, III, Counsel, Smith and Pepper,
Washington, D.C.

Mr. Allan R. O'Brien, Counsel, Gowling and Henderson,
Ottawa, Ontario

Mr. Thomas d'Aquino, Consultant, Intercounsel Limited,
Ottawa, Ontario

Mr. C. Gaylord Watkins, Associate Counsel,
Hewitt, Hewitt, Nesbitt, Reid, Ottawa, Ontario

Annex C

Briefs and Other Submissions Received

The following is a list of all companies, associations, groups, etc. who were invited to submit briefs:

Association of Public Broadcasting in British Columbia
Bell Canada
Business Intervenors Society of Alberta
Canadian Advanced Technology Association
Canadian Association of Broadcasters
Canadian Association of Data Processing Service Organizations
Canadian Association for Information Science
Canadian Broadcasting Corporation
Canadian Broadcasting League
Canadian Cable Television Association
Canadian Conference of the Arts
Canadian Labour Congress
Canadian Manufacturers Association
Canadian National Telecommunications
Canadian Pacific Telecommunications

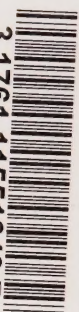
Canadian Radio Common Carriers Association
 Canadian Radio-television and Telecommunications Commission
 Canadian Telecommunications Carriers Association
 Consumers' Association of Canada
 Economic Council of Canada
 Electrical and Electronics Manufacturers Association
 Hart, Professor John (University of Western Ontario)
 L'Union des Artistes
 Motion Picture Theater Association of Canada
 New Brunswick Telephone Company
 Northern Telecom Limited
 Premier Cablevision Limited
 Provincial Governments and Territories
 Prince Edward Island
 Nova Scotia
 Newfoundland and Labrador
 New Brunswick
 Quebec
 Ontario
 Manitoba
 Alberta
 Saskatchewan
 British Columbia
 Yukon Territory
 Northwest Territories
 Science Council of Canada
 Teleglobe Canada
 Telesat Canada
 The Secretary of State of Canada
 Trans-Canada Telephone System
 United States Border Television Stations

The following is a list of all companies, associations, groups and private individuals who contributed to this report by sending briefs or other written submissions:

Association of Canadian Television and Radio Artists
 Association of Public Broadcasting in British Columbia
 Bell Canada
 British Columbia Television Broadcasting System
 Business Intervenors Society of Alberta
 Cambrian Broadcasting Limited
 Canada Post
 Canadian Advanced Technology Association
 Canadian Association of Broadcasters
 Canadian Association of Data Processing Service Organization
 Canadian Association for Information Science
 Canadian Broadcasting Corporation
 Canadian Broadcasting League

Canadian Business Equipment Manufacturers Association
 Canadian Cable Television Association
 Canadian Children's Channel
 Canadian Conference of the Arts
 Canadian Film and Television Association
 Canadian Industrial Communications Assembly
 Canadian Labour Congress
 Canadian Manufacturers Association
 Canadian National Telecommunications
 Canadian Pacific Telecommunications
 Canadian Radio Common Carriers Association
 Canadian Radio-television and Telecommunications Commission
 Canadian Telecommunications Carriers Association
 Canadian Television Showcase
 CTV Television Network Limited
 Consumer's Association of Canada
 Economic Council of Canada
 Electrical and Electronic Manufacturers Association
 Harrison, Mr. Edward B.
 Hart, Professor John (University of Western Ontario)
 IBM Canada Limited
 Institute for Research on Public Policy
 Janisch, Professor H.N.
 Mid-Canada Television
 Moffatt Communications Limited
 Motion Picture Theater Association of Canada
 New Brunswick Telephone Company
 Northern Telecom
 Premier Cablevision Limited
 Provincial Governments and Territories:
 Prince Edward Island
 Nova Scotia
 Newfoundland and Labrador
 New Brunswick
 Ontario
 Manitoba
 Alberta
 Saskatchewan
 British Columbia
 Northwest Territories
 Yukon Territory
 Reid, Mr. Harvey M.
 Science Council of Canada
 Selkirk Holdings Limited
 Spar Aerospace Limited
 Teleglobe Canada
 Telesat Canada
 Television Bureau of Canada
 Trans-Canada Telephone System

L'Union des Artistes
United States Border Television Stations
Wilson, Mr. William R.
Xerox of Canada Limited



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